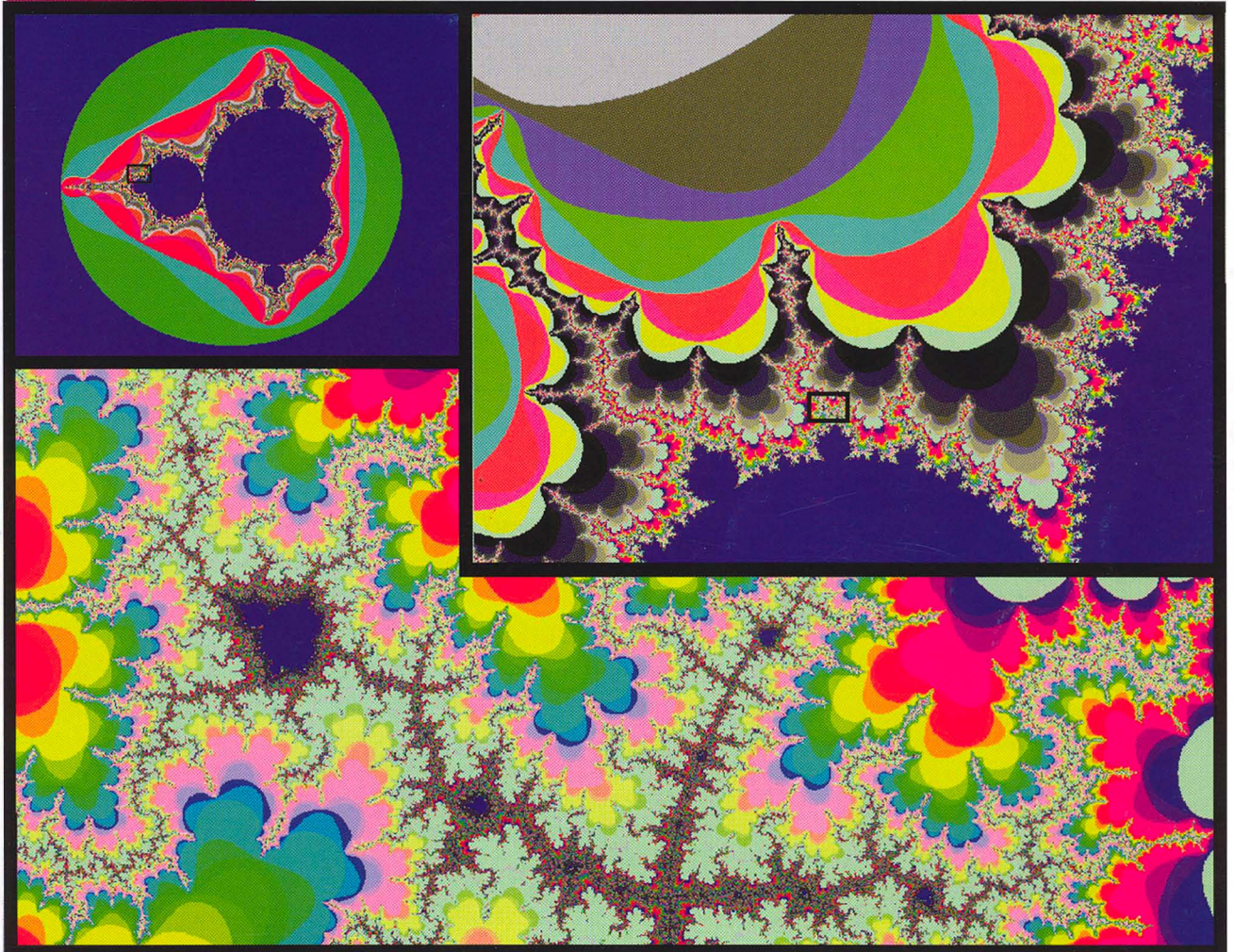




ORIGINS

• Journal of the Biblical Creation Society •

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In this issue:

20 Years of the Biblical Creation Society

The Bible and Chronology 3

Attitudes in Earth Sciences

3rd International Creationism Conference

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Writing for Origins

Origins is looking for talented new writers, particularly those who have had experience in a specialised field of science or theology, in relation to creation, and who are in agreement with the aims and basis of the BCS. In addition, writers in a popular vein are needed, but accuracy and solid content are still essential. Any manuscripts for consideration should ideally be typed, double-spaced and sent to the Editor. Notes of guidance to authors are available on request. News items that may be of interest are also sought. We now welcome articles on disk in most formats, but 3½" HD, Wordperfect 5.1 or ASCII preferred; media will be returned after transfer of the file.

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Professor Edgar Andrews

Creationism : do we have the right agenda?

IT SEEMS hardly possible that twenty years have passed since the formation of the Biblical Creation Society, but that is the case and it is appropriate to look back to see what has been achieved. The BCS has established itself as a respected source of comment, literature and information and produces one of the best creationist journals of all time. Any church or group can turn to BCS for a speaker or other assistance and the Society has also been able to respond effectively to media interest and requests for 'viewpoints'. The enormous hard work of the many who have served the Society over these years has undoubtedly borne fruit.

However, we have to look forward as well as backward, for I feel that the most important things have yet to be achieved. I am referring to the situation in the evangelical churches of Britain, where creationism is still largely regarded as a sideline, having no real significance for the gospel of Christ. Until this state of affairs is changed, I cannot rest content.

The works of God are traditionally divided into three: His work in creation, providence and grace. Today, the doctrine of creation is all but ignored, the doctrine of providence is greatly neglected and the primacy of grace over human works is much diluted. What is more, the threefold division of God's works, which is really no more than a theological convenience, has become an unbiblical trichotomy. Thus the 'gospel' is preached without reference to the nature of God and the Creatorhood of Christ, while providence is reduced to a pale acknowledgement that 'God cares'. Of course God cares! But we shall never begin to understand how much until we reunite the doctrines of creation and providence with the gospel of salvation. Without this unification, we cannot properly grasp the magnitude of God's eternal purpose in Christ, or the measure of the love of God, 'who has saved us and called us with a holy calling ... according to His own purpose and grace which was given to us in Christ Jesus before time began' (2 Timothy 1:9).

One reason why Christians distance themselves from the doctrine of creation is, of course, the overwhelming dominance of evolutionary thinking in our day. Many who profess to believe the Bible accept evolution as 'God's way of creating' all things, thus undermining the clear testimony of Scripture that creation was a finished work, distinct from God's providential care. Most, however, recognising the tension between evolution and Scripture, find it easier to ignore the subject of creation altogether. How different from the Apostle Paul, who used creation as his starting point when he preached to those with no knowledge of the Old Testament (Acts 14:15; 17:23-24)!

Creationists are not without blame in this situation, for I believe that we have often pursued the wrong agenda.

We ourselves have divorced creationism from the gospel, especially (but not only) when advancing the claims of 'scientific creationism'. In the U.S.A. this separation of creationism from Christianity was deliberate, hoping to win acceptance for the 'creation model' in a state school system which excludes religion. In the U.K., it has arisen from a mistaken view that creation is more readily accepted when divorced from its biblical roots.

Some churches, admittedly, avoid the issue of creation for less than honourable reasons, fearing to antagonise those of their members who subscribe to evolutionary beliefs. But many Bible-based churches are rightly suspicious of a movement which seems to have an extra-biblical agenda and, unfair as it may seem, this suspicion can extend even to a *Biblical* Creation Society. The BCS has tried to disarm such criticism with its 'Creation Manifesto', but this has yet to achieve the visibility it deserves. What is to be done?

My suggestion is that 'biblical creationists' should seek a deeper integration of the doctrine of creation into their own doctrinal scheme. Do we ourselves really understand how creation, providence and grace fit together in the seamless purpose of God? Do we appreciate why the New Testament speaks of Christ, in the same breath, as Creator, Sustainer and Redeemer (Hebrews 1:1-3)? Do we, in short, really understand the fullness of the biblical gospel?

Once we *do* understand these things, we will share them with fellow believers in our churches. Not just because we feel an obligation to do so, but because we ourselves will be filled with wonder at the breath-taking scope of God's eternal purposes in Christ. With Paul, we shall be constrained to cry, 'Oh, the depth of the riches both of the wisdom and knowledge of God! How unsearchable are His judgments and His ways past finding out!' (Romans 12:33). Our agenda will not be a barren 'creationism', but Christ, the Creator, by whom and for whom all things were made and in whom all fullness dwells (Colossians 1:15-20).

Editorial

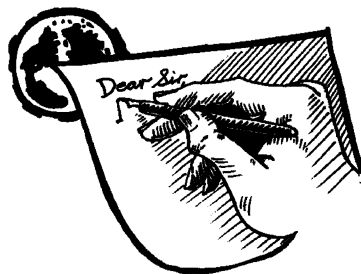
This issue has a special, though not exclusive theme. In 1975 a group of scientists and theologians met for the first time as founder members of the Biblical Creation Society. The Society had its public launch in 1976. So, this final issue of 1995 completes our first twenty years. As an acknowledgement of God's grace towards us, we have included a couple of special items.

Our President, Professor Edgar Andrews, has contributed much to this cause down the years and we invited him to write our guest editorial for this issue. We commend this highly to our members and encourage you not only to take note of its contents for yourself but consider passing it on, particularly to your church leaders. We are happy to grant

permission to readers to photocopy articles or parts of them for the purposes of personal study and research and we would be happy to extend that permission for the circulation of this keynote editorial to church leaders.

Over these first twenty issues of *Origins*, we have covered a range of subjects. Sometimes it is difficult to quickly locate that article you want. Here is a help. Perhaps we will do one for the predecessor to *Origins*, our first journal, *Biblical Creation*.

There are several references in this issue to our *Creation Manifesto*. This is now out of print but it is being modified and should be republished later this year.



Robin Pearce

I read with interest the short article in Queries and Comments in *Origins*, 7(18):19–20 on the 'Boxgrove Man'. I was particularly interested in the short paragraph about Acheulian hand-axes. I realise that this is a relatively minor point, but nevertheless I think it is very important to be accurate.

You refer to the suggestion of Eileen O'Brien of the University of Georgia that the hand-axe was 'actually a flying projectile weapon, thrown discus style'. (I am quoting from Lubenow, *Bones of Contention*, page 142). Her experiments were carried out with a replica about 'a foot long' and weighing 'a bit over four pounds'. That is a very large hand-axe. Most hand-axes are much smaller. Two I found locally [Dorset], for example, are less than four inches long. In fact, most hand-axes are less than 6 inches long and unsuitable as projectiles.

You also say that the hand-axe 'is virtually unusable as a tool in the traditional sense' because of its sharp edges. Here again, the majority of hand-axes have, in fact, a relatively blunt butt and fit comfortably in the hand...

Finally, you say that 'flint weapons themselves are very difficult to produce without a lot of skill and training'. This again is not quite true. In courses organised by Bristol University on making flint tools, several 'students' were able to make an acceptable flint tool in a one-day session. I agree that it does require some skill, but with the right kind of flint and a few simple instructions and a demonstration, it is not too difficult for many people.

Having said this, I agree that people who made the hand-axes were intelligent human beings.

Correspondence

Una M. Haines

I have, over a period of time, been coming to the reluctant conclusion that quite a few of the articles that appear in *Origins* are, in fact, beyond my comprehension. I am not a trained scientist and, indeed, in our family we all tend to specialise in art, music, archaeology, biblical studies and that is where our enthusiasms lie. I do realise that the *BCS* journal is the place, *par excellence*, for advanced scientific studies; I can only regret that they are mostly a closed book to me.

Michael Bland

I have reluctantly to say that, though I support the cause 100%, for me personally most of the content is not suitable. In fact, it is way above my head, though I have a degree! (in Arts, I should add). What I need, like most ordinary folk, is material without the technical terms, in layman's language. There is a deep need for creationist information of this kind, not least here. But I have nothing to drop into churches *etc.* or to give to young people ... I know that it is vital to have material like *Origins* for the scientific community, but, as I said, it is the wrong sort for someone like me.

[Editorial comment: We understand the point being made by our last two writers. We are looking at the content of our journal and its readability for the future. We are also in the process of producing some better popular literature—so, watch this space!]

The Bible and Chronology

3: An Archaeological Reconstruction

J. H. John Peet

WE CAN fix the birth of Moses to around 1530 BC¹ (Peet, 1995). He must have been in Midian from 1490 BC (Acts 7:23) to 1450 BC (Acts 7:30). During this period (presumably towards the end of it), the Pharaoh, from whom Moses had fled, died (Exodus 2:23). The Pharaoh of the Exodus obviously died in the year 1450 BC, because he was drowned with his troops in the Red Sea (Exodus 14:28; Psalm 136:15). The Pharaoh of the Exodus would also have lost his firstborn son in the tenth plague, immediately prior to his own death. That *should* give us a clear reconstruction of the parallel Egyptian history.

Unfortunately things are not that easy. As we mentioned in the last part of this series, two different dates are proposed for the Exodus by scholars: approximately 1450 BC and 1290 BC. The former is the result of a natural reading of the Scriptures and suggests that the Pharaohs (of Moses and the Exodus) were Thutmose III and Amunhotep II. The later date favours Seti I and Rameses II. This date is consistent with the use of the name Rameses for the city the Jews built (Exodus 1:11). On the other hand, Thutmose III, of the earlier dating, used slave labour in his building projects. Both dates can be related to the archaeology of Canaan (Kitchen, 1977; Aling, 1981). Crocker gives a recent survey of the problems of dating the Exodus (Crocker, 1994).

However, neither of these reconstructions fits the historical data of our introductory paragraph satisfactorily.² We must remember that the Egyptian history as described in our textbooks is a reconstruction and interpretation just as we reconstructed Jewish history. It may reasonably be considered to be based on more fragmentary evidence and less reliable records than that in the Scriptures. Significantly, when we accept the Scripture record as correct, we are faced with the conclusion that a dark period of Egyptian history must follow, politically, economically and militarily.

An alternative way of approaching the problem, with a view to its resolution, is to look at the archaeology of Palestine. The two nations, Israel and Egypt, both interacted with the Canaanites. In addition, the Israelites invaded the land and conquered it starting some forty years after the time of the Exodus. So, there ought to be clear archaeological evidence here.

Period	Pottery
Neolithic	
Chalcolithic	
Early Bronze Age	IA–C II III–IV
Middle Bronze Age	I IIA IIB IIC
Late Bronze Age	I IIA IIB
Iron Age	IA IB IC IIA IIB IIC
Babylonian	
Persian	

Table I : Palestinian
archaeological periods

The archaeological periods

It is not proposed to describe the details of archaeological methodology here; it is adequately described elsewhere (Lance, 1981; Moorey, 1981). It will be helpful to mention a few principles.

The archaeological periods are described by ages marked out by the nature of the tools and weapons used: stone, copper, bronze and iron. These can be subdivided further, *e.g.* Early, Middle and Late Bronze Ages. Finer divisions can be achieved by studying pottery styles within the cultures and are denoted by Roman numerals, *e.g.* Middle Bronze Age I, IIA, IIB, IIC. See Table I.

Often the cultures of other nations are described by different terms for the archaeological ages, making it difficult for non-specialists to relate the systems, but information correlating them is readily obtainable.

Both of the dates proposed for the Exodus and Conquest fall into the Late Bronze Age (1500–1200 BC) as conventionally dated for Palestine. But, as we shall see, there are arguments being raised challenging this assignment. If the Conquest falls into any other period, then clearly the

chronology of the periods (or of our biblical interpretation) must be reassigned. The archaeological ages have the dates assigned by inference. Of themselves, they are silent on this issue. We saw in the previous part of this series that dates can be assigned by cross-referencing Palestinian events with dateable events in other nations. We then have to decide which of the excavated layers relates to that historical event.

Kitchen (1995) has recently published a very helpful paper showing that the biblical account of the patriarchal period is consistent with a contemporary account of those times.

The limitations of archæological excavations are well recognized. Often earlier work is subject to reassessment in the light of new discoveries or studies (e.g. Wood, 1990). It is often assumed that, for example, iron was not used before the Iron Age or bronze in the Stone Age. This is clearly not the case as observed in the recent discovery of the 'Ice Man' in the Alps (Spindler, 1994).

When a site is excavated, successive layers are uncovered and numbered from top down. Table II illustrates this for the site at Megiddo, Israel.

Different cultures often exchange materials or invaders leave their mark. For example, if Victorian English furniture is found in Japan, it would suggest that an English colony existed there at that time. So, the Late Bronze Age Megiddo level VII contains a cartouche⁴ of Rameses III and a statue of Rameses VI (Finkelstein & Ussishkin, 1994). We may reasonably expect these Palestinian periods and Egyptian rulers to be contemporary.

However, confusing and conflicting evidence is often found. In a recent example, eleventh century sherds were found in Dor coincident with a cartouche⁴ of Thutmosis III of the fifteenth century (Stern, 1993). Problems have been highlighted by other archæologists (James, 1991; Rohl, 1995).

The Archæological Ages and the Exodus

Late Bronze Age Exodus

This interpretation of biblical and archæological records places the Exodus in the Late Bronze Age with the Conquest marking the beginning of the Iron Age I and the monarchy, Iron Age II.

The obvious, and attractive, link between the Late Bronze Age and the Exodus/Conquest events is in the use of the name *Pi-Rameses* for the store city built by the Israelites (Genesis 47:11; Exodus 1:11). In this period, Rameses II would be the likely pharaoh of the oppression if not the Exodus itself. The city was built on the site of the Hyksos town of Avaris.

A famous stele (see opposite) is that of Pharaoh Merenptah. This includes a description of a number of nations, including, apparently, Israel. In the context of a Late Bronze Age Exodus/Conquest, this would probably have to be interpreted as a newly emerging nation in Canaan, perhaps not yet fully established. The wording is typical of those which contrasts the *impotence* of a foreign land with the *great potency* of the king of Egypt (Bimson, 1988).

Kitchen (1977) compares the nature of the Exodus covenant with those of other Late Bronze Age peoples. They are similar to those of late second millennium BC nations. Also, we find references to the *Habiru* peoples in the Palestinian region. It would seem reasonable to equate them with the *Hebrews* of

the Old Testament, since they are clearly related linguistically and they both troubled the Canaanite population!

If a new people moves into an area, especially of a different cultural background, we would expect to see destruction of the old towns and new cultural aspects being introduced. This is observed with a proliferation of new habitations in the Iron Age I (following the destruction at the end of the Late Bronze Age). There is a cultural continuity into Iron Age II.

Since this period is considered parallel to the Eighteenth and Nineteenth Dynasties of Egypt, it is important to see that these tie in. We have already mentioned Rameses II and Merenptah. The ancient historian, Manetho, claims that the bondage took place under the Eighteenth Dynasty (Waddell, 1980; p. 111). (He identifies the pharaoh of the Exodus as Amosis, the first member of the dynasty).

Another person of importance is the character *Shishak* who attacked Israel in the time of Rehoboam (2 Chronicles 12). It has been proposed that he is identical with *Sheshonq I* of the Twenty-second Dynasty. Though this is an attractive synchronism, it has been shown (Bimson, 1992/1993) that it suffers from fundamental problems which do not prevent an alternative identification.

These features all present a strong case in favour of the Late Bronze Age placement. But in no case is the evidence unambiguous and, in some cases, it is weaker than it appears at first. The synchronisms with

Egypt are based on the accepted Egyptian chronology. If that is faulty, or the Late Bronze Age link is wrong, then the Israelite/Egyptian synchronism fails. An important test, therefore, would be to see if there is any contrary evidence for this placement.

Stratum	Period
I	Persian
II	Babylonian
III	Iron IIC
IV A	Iron IIB
IV B/VA	Iron IIA
V B	
VI A	Iron IB
VI B	Iron IA
VII A	Late Bronze III
VII B	Late Bronze IIB
VIII	Late Bronze IIA
IX	Late Bronze I
X	Middle Bronze III
XI	Middle Bronze IIC
XII	Middle Bronze IIA/B
XIII	Middle Bronze I
XIV	Intermediate
XV–XVIII	Early Bronze II/III
XIX	Early Bronze I
XX	Neolithic

Table II : Cultural levels in Megiddo³ (after Finkelstein and Ussishkin, 1994)

Desolation is for Tehenu,
Hatti is pacified,
Plundered is Canaan with
every evil.
Carried off is Ashkelon,
Seized upon is Gezer,
Yanoam is made non-
existent.
Israel is laid waste,
His seed is no more,
Hurru is become a widow
because of Egypt.



Excavations at Megiddo

There are several problems. For example, the period of the judges has always been a difficulty for those who seek to synchronize the biblical record of the judges with the time available from the Conquest to the time of Solomon (450 years). Any attempt to squeeze it into the period left by the Late Bronze Age Exodus has to overlook the biblical statements on successive periods for some of the sequences of the judges. (This has been discussed in Part 2 of this series of articles).

Another related problem concerns the Egyptian influence in Israel. Though an argument from silence is always a difficult one, it is very strange that the period of the Judges until the early monarchy contains no reference to the great power of Egypt, especially since so many other enemies are highlighted.

There are Egyptian records known as the Amarna correspondence. It relates to a time of turmoil in Canaan when the kings of the city states sought help from the Egyptian pharaohs to overcome the attacks by the *Habiru*. To synchronize this with the biblical record, it is common to relate it to the time of the Conquest of Canaan by the Hebrews. For the Late Bronze Age construction, this creates a major problem: the Amarna period preceded the time of Rameses II (pharaoh of the Oppression), so the Conquest would have had to precede the Exodus! (Alternatively, one would have to relate the Amarna letters to a much earlier time and a non-Hebrew people attacking Canaan).⁵

Another problem with the Late Bronze Age Conquest is that we should be looking for a sharp cultural change at the Late Bronze Age–Iron Age I transition. We have a large number of people with a very different culture and religion invading the land. The destruction of the cities (as listed by Joshua) and of their pottery and possessions should be followed (in most cases) by rebuilding and the appearance of a new culture (which developed during forty years in the wilderness and possibly based on their many years in Egypt). Their religion and laws, which *may* have had similarities to those of other nations, would be distinct, as a result of God's revelations to Moses at Sinai. Is this what we find?

The archaeological transition is certainly not that pronounced. Jericho was a key city in the Conquest and its overthrow was something of a major victory. However, the Late Bronze Age Jericho indicates little evidence of occupation (Bartlett, 1982).

Another contradiction, within the archaeological records themselves, concerns Dibon. This is located east of the Dead Sea (in Jordan). Excavation there gives no evidence of occupation before the Iron Age. But, if Rameses II is the pharaoh of the Oppression, we would expect to find Late Bronze Age remains. This is because the pharaoh's war reliefs refer to his conquest of Dibon in Moab and it is illustrated by a fortress. Indeed, it is an important place recorded in the book of Numbers and so should have a Late Bronze Age culture under this chronological model. Of course, we acknowledge

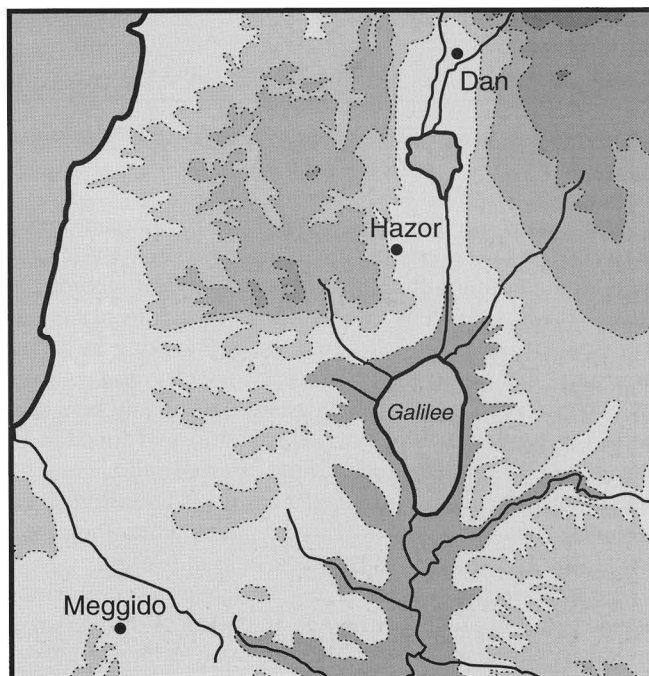
that future exploration may reveal the missing cultures (Kitchen, 1977).

Probably the most disturbing feature of the Late Bronze Age Exodus scenario is the way so many treat the biblical record with scepticism in order to synchronize it with the archaeology of the period.

Middle Bronze Age Exodus

The great attraction of this placement is the way it fits so well with the biblical chronology (Bimson, 1978). One archaeologist, Yohanan Aharoni, has summarised his findings as follows:

'We therefore arrive at a most startling conclusion: the biblical traditions associated with the Negeb battles cannot represent historical sources from the days of Moses and Joshua, since nowhere in the Negeb are there any remains



of the Late Bronze Age. However, the reality described in the Bible corresponds exactly to the situation during the Middle Bronze Age.’ (Aharoni, 1976).

Bimson (1978; Bimson and Livingston, 1987) has shown that (with one notable exception, Ai, for which, see below) the archaeology of the Canaanite sites at the end of the Middle Bronze Age II fits well with the biblical account (Table III). (See also James, 1991; Rohl, 1991/1992; Rohl, 1995). We have noted the problem with Jericho in the Iron Age I Conquest. This problem fades with this relocation of the Conquest archaeologically. We have a city with a significant population destroyed and then uninhabited for a substantial time (Joshua 6:26; 1 Kings 16:34).

City	Reference	Archaeological find
Jericho	Joshua 6:20–24	Destroyed by burning; evidence of earthquake.
Bethel (Beitin)	Judges 1:22–25	Destroyed by burning.
Hazor	Joshua 11:10–11; Judges 4:2	Destroyed by burning; rebuilt soon after.
Debir	Joshua 10:38–39; Judges 1:11	Destroyed by burning.
Lachish	Joshua 10:31–32	Destroyed by burning.
Hebron	Joshua 10:36–37	Deserted for a time after Middle Bronze Age.
Eglon	Joshua 10:34–35	Destroyed.
Gibeon	Joshua 9	Deserted for a time after Middle Bronze Age.
Hormah	Judges 1:17	Deserted for a time after Middle Bronze Age.
Arad	Numbers 21:1–3; Numbers 33:40; Joshua 12:14	Deserted for a time after Middle Bronze Age.
Dan	Judges 18:27–30	Destroyed by burning; resettled soon after.
Megiddo	Judges 1:27	No break between Middle Bronze Age and Late Bronze Age cities.

Table III : The Canaanite sites at the end of the Middle Bronze Age II.

The period of the Judges can now fit in comfortably between the Conquest and the monarchy (Peet, 1982/1983) without abandoning the integrity of the biblical record. The collapse of Egypt can be loosely fitted in with this placement too (see further on this below). We are looking at a time preceding that of the great Eighteenth/Nineteenth Dynasties (which include the powerful Rameses II). It would be a dark period in Egyptian culture when the land was invaded by foreigners (the *Hyksos*) and had little external influence. (This time is called the Second Intermediate Period). These foreigners obviously had to overthrow the Egyptians when they were weak. The Exodus provides such a time in history.

We need to ask if there is any evidence of a correlation between the Middle Bronze Age II period and this earlier period in Egyptian history. There is such evidence (Ward,

1994). Egyptian scarabs⁶ are found in Canaan, giving evidence of likely contemporary pharaohs.

Canaanite period	Archaeologically dated scarabs
Middle Bronze I	12th dynasty
Middle Bronze II	13th dynasty
Middle Bronze III	15th dynasty
Late Bronze I	18th dynasty

Table IV : Egyptian scarabs in Canaan (after Ward, 1994)

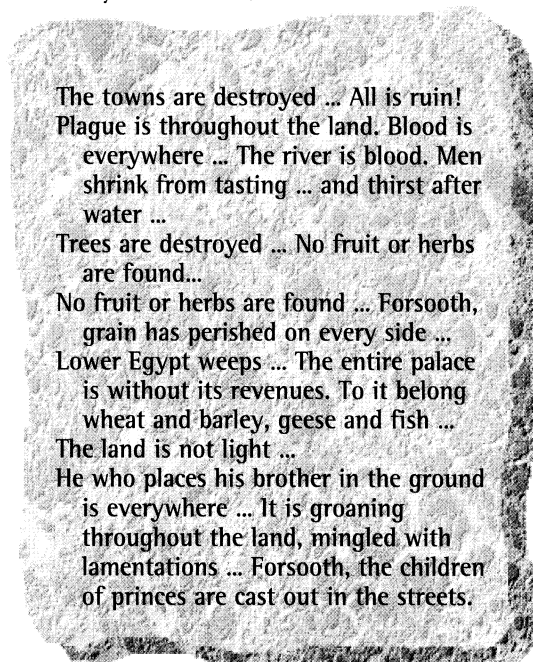
Back in Egypt, we can find other possible synchronisms. Professor Bietak has been involved in excavations at Tel ed-Dab’a, Egypt. This is the probable site of Pi-Rameses, formerly Avaris (Shea, 1990). He has identified layers D to F as of Canaanite culture, whereas the older layer G, is of mixed Egyptian and Canaanite culture. This latter layer terminates with plague conditions which remind us of the Exodus period.

A wall painting in a 12th dynasty tomb shows the arrival of a Semitic people in Egypt. This *could be* a reference to the Israelites.

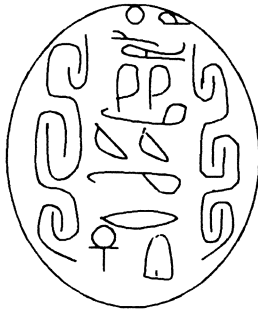
Manetho (Waddell, 1980; Fr.38, n.3 and Fr.42, n.3) refers to a Tutimæus (Dedumes) of the thirteenth dynasty in whose reign the Hyksos struck the Egyptian nation.

One other interesting parallel in Egypt is the Ipuwer Papyrus. This document is generally dated to the First Intermediate Period, but *could* possibly be located in the Second Intermediate Period. This scribe describes the catastrophies that had befallen Egypt. They are reminiscent of the Exodus plagues.

These are some of the expressions of despair by Ipuwer (not necessarily consecutive):



The much earlier period, the Early Bronze Age, would have to parallel the time of Abraham.⁷ This is not a problem in



A Canaanite scarab. The hieroglyphics spell out the Egyptian transliteration of Ya'qub, Jacob

general. Of particular interest is the work of Rast and Schaub (Wood, 1974; 1983; Anon, 1980; Shea, 1988) who have researched the Cities of the Plain, especially Sodom and Gomorrah. They identified these with Bab edh-Dhra and Numeirah respectively. These cities were destroyed in the Early Bronze Age with a dramatic conflagration reminiscent of the biblical account (Genesis 18–19).

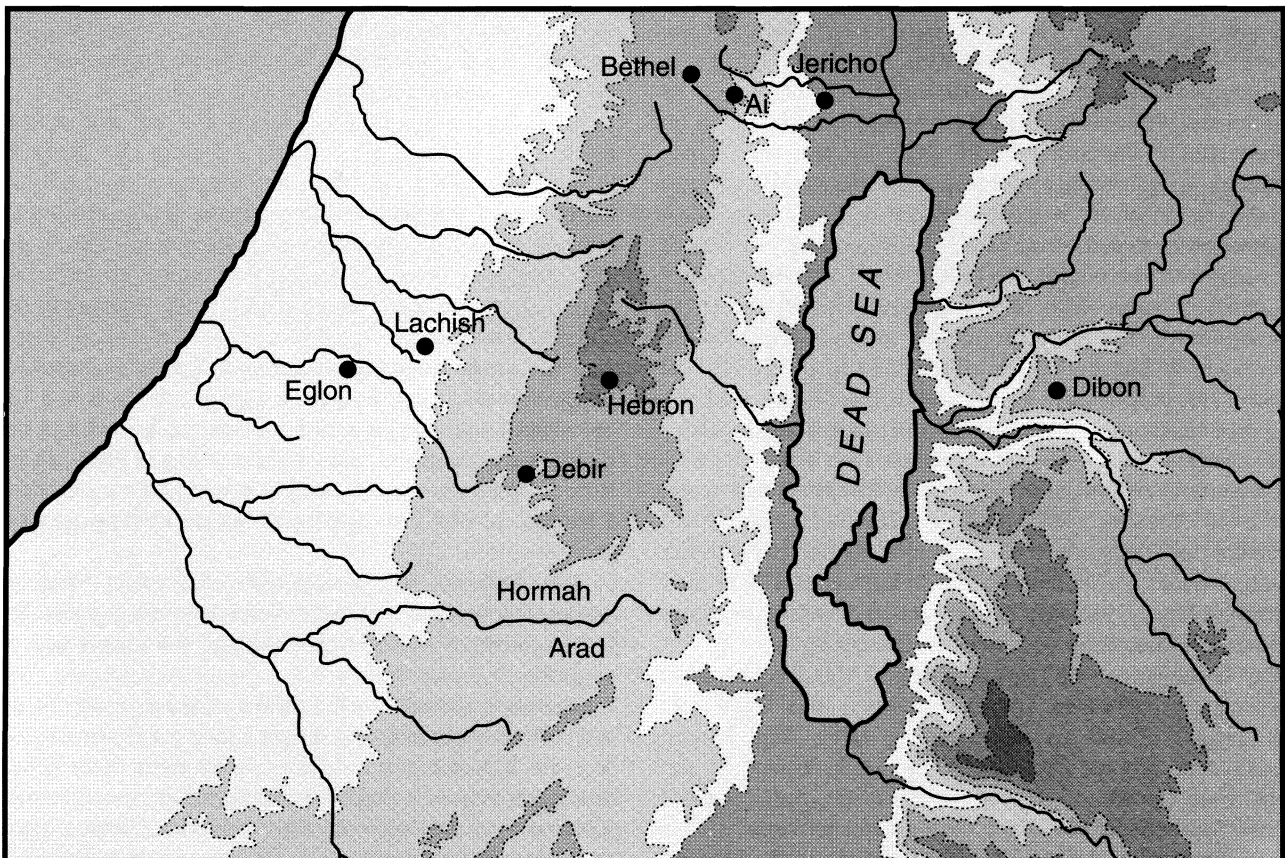
What are the problems with this placement of the Exodus? (Stiebing, 1988b). One that has been a long-standing problem for biblical scholars is Ai, the second city attacked by Joshua (Joshua 7–8). This was a significant city in that it resisted the Hebrews, even when the stronger Jericho fell. (Obviously the Lord was behind this event but the Bible gives us no reason to suppose it was an unoccupied settlement!) The problem for us (in this and other archæological periods) is that Ai does not display the expected occupations. Livingston (1988; 1994;

Fields, 1993) has worked on this from a new and encouraging angle. Looking at the biblical record on the location of Ai and Bethel, he has pointed out that the generally accepted sites (et-Tell and Beitin) do not conform to Scripture. Instead, he proposes Khirbet Nisya and el-Bireh respectively. Over a number of years he has been excavating at Khirbet Nisya and the provisional assessment is that this accords well with the biblical data. (Really the only evidence supporting the conventional site seems to be the modern name, Beitin, for Bethel).

The name Rameses, used for the city built by the Israelites, could well have been an editorial update at a later time or may indicate that the name was more common in earlier times than is often supposed (Courville, 1971; Robinson, 1994/1995). The former situation is well recognized, for example, in Genesis 14:14 which refers to Dan. The name was not given until much later (Judges 18:29). Even more specifically, the region known as Goshen (Genesis 47:4,27) is also described by its later name of Rameses (Genesis 47:11). The modernization of texts (in references such as Genesis 14:14 and 36:31) is acknowledged by Kitchen (1995), though he does not apply it to Rameses.

An apparent anachronism in the biblical account concerns the reference to Pharaoh and his chariots at the time of the Exodus. This is thought by many to be a problem in the Middle Bronze Age or earlier placements of the Exodus. Helck (1978) has demonstrated the likelihood of chariots being known in the thirteenth dynasty.

Others have found problems with the genealogies. For example, that of Moses (Exodus 6:16–20) appears to require





The arrival of a semitic family in Egypt during the 12th Dynasty (from Bimson, 1979)

just four generations covering the Oppression. For the same time period, Bezaleel (Exodus 35:30; 1 Chronicles 2:18–20) has seven generations and Joshua, twelve (1 Chronicles 7:23–27). We have already seen (Peet, 1995) that it is a normal practice in Hebrew genealogies to omit certain generations. The internal biblical evidence on Moses's family confirms this as there were about 2,000 Amramite men (plus women) at the time of Moses (Numbers 3:27–28).

Early Bronze Age Exodus

The natural reaction is that this archaeological period is too early, but we must examine the possibility on the same basis as the other periods. What do the excavated sites indicate? Then we can look at the wider correlations. A number of writers have supported this placement (Courville, 1971; Osgood, 1986; Porter, 1990; Vaninger, 1983).

The strengths of this placement can be readily identified. The Early Bronze Age is followed by the First Intermediate Period in Egypt, demonstrating again a period of economic and cultural ruin in the country after the Exodus. The Ipuwer Lamentations, referred to earlier, fit into this time slot readily.

There is a clear disruption in Canaanite history and the time period of the Judges would fit in well. Placing the Exodus at this time increases the time available between the Flood and the Exodus (because the Early Bronze Age would need to be shifted to the fifteenth century BC). Though this is not necessary, it is more convenient when considering the growth and dispersion of the world's population.

The conventional site of Ai, et-Tell, could fit with a destruction of the city at the end of the Early Bronze Age (though it still suffers from other biblical problems concerning its geography). The Early Bronze Age walls of Jericho were recognized as amongst those most likely to fit the biblical account, though Bryant Wood (1990) has shown that the evidence needs to be reinterpreted and places them at a later date.

Proponents of this period see a likely candidate for Joseph in the 3rd dynasty vizier of Zoser, Imhotep. Though an attractive possibility, there is no obvious connection with the Egyptian name, Zaphenath-Paneah (Genesis 41:45). In fact, Bimson (1978/1979) sees a better parallel between the name and other terminology with twelfth dynasty Egypt.

On the negative side (Stiebing, 1988a), the chronological discrepancy (between Egyptian history and Canaanite archaeology) of this reconstruction is large. The Middle Bronze Age scheme requires some readjustment of the chronology (James, 1991; Rohl, 1991/1992), but the Early Bronze Age scheme is looking for a greater movement. This is demonstrated in the large deviance in Carbon-14 datings.⁸

Also, there is a need to reduce the length of the Second Intermediate Period in Egypt.

We lose the synchronism with the destruction of the Cities of the Plain, but this may imply that the destruction levels identified should be related to a wider calamity experienced in the Middle East. Particularly problematic for the biblical scholar is the existence of an Middle Bronze Age city of Jericho, apparently in conflict with the biblical prophecy noted above (Joshua 6:26; 1 Kings 16:34).

Decision time

The reader may make his or her own choice. No one position is currently unambiguous. My choice, on the basis of correlation with the Scriptures, is the Middle Bronze Age Exodus setting. But continued research may render that decision incorrect!

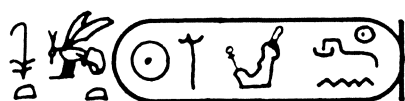
The remaining and substantial problem is that recognized Egyptian chronology apparently ties in with the Late Bronze Age Exodus. But these are not entirely independent studies and so the link is inevitable. We have noted that at least one of the key synchronisms, Shishak/Sheshonq, is not so secure as supposed (Bimson, 1992/1993). In fact, when that link is broken, some movement in Egyptian chronology (with respect to Canaan chronology) is possible.

A full discussion of this is not possible here and interested readers should study the research of James (1991) and Rohl (1991/1992; 1995).⁹ In brief, the Exodus would fall at the beginning of the Second Intermediate Period in Egypt and Shishak would be identified with Rameses II (Rohl, 1991/1992; 1995) or Rameses III (James, 1991) who had a hypocaristic name, Shisha or Sessi, which could be the equivalent of the Hebrew, Shishak.

If the chronological revision is accepted, Solomon must have reigned in the Late Bronze Age, not the Iron Age. There are several points in favour of this reallocation. This period is much more consistent with Solomon's age of glory. The Late Bronze Age building structures at Megiddo are in accord with 1 Kings 7:12 (the Iron Age buildings are not consistent with this).

Rohl believes that Merenptah's inscription, referred to earlier, celebrates the victories of his grandfather, Seti I, and father, Rameses II. The 'hymn' can be correlated with their victories.

The need for this study (and continuing research) is not only to demonstrate the integrity of Scripture, but also to serve as a check on our chronological construction in the previous article. Having reviewed biblical chronology and archaeology, we move on, in the next part, to biblical chronology and geochronology.



USER MAAT RE SETEPEN RE



RA MESS ES

Cartouche of Rameses II

The left-hand symbol preceding the cartouche means 'King of Upper and Lower Egypt'; the right-hand prefix means 'Son of Re'

Notes

1. Moses died immediately before the entry to Canaan, ca. 1410 BC, when he was 120 years old (Deuteronomy 34:5-7).
2. The reign lengths: Thutmose III, 54 years; Amunhotep II, 26 years; Seti I, 16 years; Rameses II, 66 years.
3. Proposed dates are omitted as they are additional interpretations of the evidence.
4. A cartouche is an oval shape surrounding the last two names of the pharaoh's official title.
5. This has helped to give rise to a multi-stage Exodus/Conquest hypothesis by some critical scholars. Some have also proposed that, because of the lack of a sharp cultural change, the concept of a Conquest should be replaced by a settlement. Obviously these ideas are at variance with the biblical record.
6. A scarab is a beetle-shaped stone, engraved with royal names. It is believed that these were sometimes produced even after the death of the pharaoh, but Table IV does show a consistent chronological pattern.
7. Levy *et al.* (1995) have reviewed the correlation between Egypt and Canaan and so place, for example, 1st Egyptian dynasty as synchronous with Canaan EB II.
8. See some of the excellent work by David Tyler on carbon-14 dating (Tyler, 1978).
9. A three part Channel 4 broadcast was produced to coincide with the publication by Rohl (1995).

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A Look Back over 20 Years of BCS



David J. Tyler

HAVE YOU ever started a day's hiking by viewing your route from a suitable vantage point? Your destination seems an extremely long way away! So walking commences and, after much effort, you reach your goal. Then is the time to look back—and somehow the place where you started doesn't seem so far away! My experience of looking back over 20 years of BCS and over 25 years of involvement in creationism is a bit like this. 25 years ago, the pathway looked unwelcoming and difficult. However, much ground has been covered—we've come a long way—but from today's vantage point, it often feels as though we're still very close to where we started!

A Personal Comment

The origins issue was something I needed to grapple with as soon as I became a Christian—which was at university, where I read for a physics degree. My peers were all involved with the Inter-Varsity Fellowship (IVF, now the UCCF), a Christian ministry among students -which I still regard with affection. A number of Christian men of science influenced me during my student days, primarily through their writings, and I adopted their position, commonly known as theistic evolution. I held to the principle of complementarity: that evolutionary theories provided a scientific perspective on origins and that the Bible provided a theological perspective on origins, without any tension or conflict between them. In my 3rd year at University, in 1967–8, I was the Secretary of the Christian Union and active in many discussions on all sorts of issues. I remember coming across a book by Professor Enoch, an Indian academic, which was one of the first creationist books to be published in the U.K. I have to say that it did not impress me and I was able to dispose of Enoch's challenge to my position—at least to my own satisfaction.

Once I commenced employment, it was possible to rework some of my beliefs: were they faithful to God's revelation in the Bible? At that time, there were relatively few books to work with. There were also very few creationists who could represent their position in a balanced and informed way (I found more creationists among the sects than among Christians!). However, God provided me with one good Christian friend who was a creationist and some scholarly books which helped my understanding of God's Word. My adherence to theistic evolution was first broken by reading the Letter of Paul to the Romans and realising that Adam was as real a historical figure as Jesus Christ. It was important for Christian theology to defend the historicity of Adam and the reality of his disobedient act in Eden. My thoughts on ancient and early man *had* to be revised: complementarity could not be applied here. Both the Bible and science were making claims about human history. The evolutionary scenarios could not be reconciled with the biblical record. After the Letter to the Romans, I turned to the Book of Genesis, and

found the same conflict: the Bible was making claims affecting history, and my complementarity views could only survive if the Biblical record was abstracted from history. So, during 1970–1971, I found a transformation in my thinking: away from theistic evolution and towards biblical creationism.

Creationism in the early 70's

The U.K. creationist scene in early 70's was not very encouraging. A few voices were to be heard, and most of the literature was from the United States (U.S.) A significant impact was made when Evangelical Press published *The Genesis Flood* in 1969. Whitcomb and Morris's book was first published in the U.S. in 1961 and it stimulated the revival of young-earth creationism which has been a significant aspect of evangelical life in that country. In the U.K., the book was not well received by opinion formers among Christians in science, but it was appreciated by numerous readers who were wanting a stronger emphasis on the veracity of the biblical history of origins. The Evolution Protest Movement was active during this period, but I did not find myself drawn to it—because I was not so much interested in protesting about evolution as proclaiming a biblically-based approach to origins. The Newton Scientific Association was formed with the goal of holding day conferences and publishing lectures addressing the scientific aspects of origins, but for various reasons, it had a limited life.

During 1975, a group of theological students associated with IVF were becoming dissatisfied with the theistic evolution position. These students recognised that there was little freedom to develop ideas out of step with theistic evolution within the existing organisations, and something new was needed. Concerns became so strong that they decided to launch an initiative: to form the Biblical Creation Society. At that time, the chairman of the Theological Students' Fellowship was Nigel Cameron, and he became the first chairman of BCS. The Society was formed in 1976, and numbers grew rapidly at first as scientists, teachers, parents and other students learned of its existence. The Society's major activity has been to publish a journal: *Biblical Creation* which after 24 issues

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was re-launched as *Origins* with the intention of introducing more variety and giving the journal a more popular format.

Creation Science and Biblical Creation

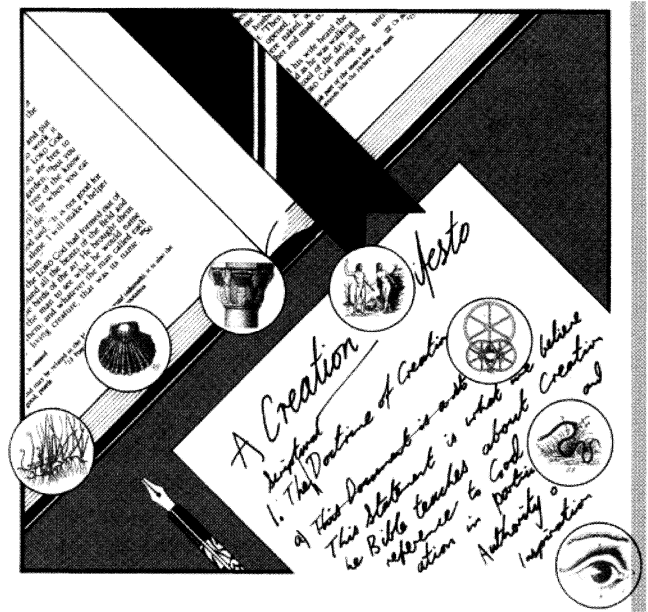
All through the 70's, 80's and now into the 90's, creationism has been dominated by the 'creation scientists'. Book titles, magazine titles, organisation names and media usage have combined to make creation science synonymous with creationism. This has made things much more complex for those of us who do not operate with the same agenda. I want to elaborate on this briefly.

The political agenda for creation science has come about because of the strong creationist movement in the United States. There has been a tradition in the U.S. of defending civil rights by litigation and this has entered the area of education. According to the U.S. constitution, the state defends liberty of conscience, and does not promote any one religion over another. It calls for a separation of religion from education, so the Bible (and any other religious book) is not part of teaching in state-funded schools. The major creationist strategy for dealing with this situation has been to develop 'creation science' which makes no reference to the Bible. So, for example, the Institute for Creation Research published a book *What is Creation Science?* in two editions: with and without a final chapter relating everything to the teachings of the Bible. The version targeted for state schools omitted the final chapter. From the U.K. vantage point, this political agenda is most unfortunate. Within BCS, we have never attempted to separate our creationism from the Bible—most of us would say that this is undermining our foundation and opening the door to misunderstandings! We have never attempted to move our focus from a ministry of reasoned argument and persuasion to one of legal confrontation. Unfortunately, the courtroom gets more media coverage, and creationism is associated in many peoples' minds with such contention. (In practice, I hasten to add, the majority of U.S. creationists will emphasise the importance of having biblical foundations for what they are doing. Unfortunately, they have got so used to the term 'creation science' that they find it hard to appreciate that there is a problem).



Dinosaur footprints

One of the dangers of scientific creationism is that the debates with evolutionary science become very technical. Bearing in mind that the majority of the population do not have a background in science, the potential for confusion is high. In general, people are not equipped to evaluate the arguments presented to them—and their judgments are often more emotional than rational. In their zeal to win the hearts



of the masses, the creation scientists have tended to grasp at arguments which seem to give them an advantage in debate—without the proper assessment and peer review which is appropriate in all scientific activity. Thus, we have a string of false or insecure leads: the Paluxy footprints, the shrinking sun, the thin layer of moon dust, the decaying speed of light, the Guadaloupe skeleton, and many others. The disillusionment that comes when such evidences are shown to be not so impressive can be intense.

How have we sought to address these problems? As a Society, we have always emphasised the importance of building on a sure foundation: the truth of God, revealed in the Scriptures. Our President, Professor Edgar Andrews, published a lecture which drew attention to the emphases of biblical creationism and scientific creationism (*Biblical Creation*, 1984, 5(16):89–102). This was re-presented as chapter 6 of his book *Christ and the Cosmos* (1986). Another major initiative to clarify the situation was the publication of the Creation Manifesto in *Origins*, 1988, 2(5):6–10. This document sought to distinguish between truths that are revealed, and the results of scientific work about which there can be much legitimate debate. It sought to show how the biblical teaching on Creation underpins so much of what we believe, and that biblical history and theology provides a foundation for scholarly activity in a great number of disciplines. We were thus emphasising that creationism is not the stomping ground for specialists in technical aspects of evolutionary biology/geology, but the expression of basic Christian attitudes to origins and the province of every thinking Christian.

The U.K. Evangelical Scene

The witness to creationist ideas has come a long way during the past 25 years. Members of BCS have contributed to the literature available to the Christian public. Perhaps first mention should be of Sylvia Baker's *Bone of Contention* (1976), an immensely influential booklet introducing people to the key ideas. Our President has published, in addition to the title mentioned above, *God, Science and Evolution* (1980), *From Nothing to Nature* (1978) and the booklet *Is Evolution Scientific?* (1977). Nigel Cameron published *Evolution and the Authority of the Bible* (1983). More recently, John Peet has written *In the Beginning GOD Created ...* (1994). In different ways, these authors address key issues in the debate about origins, and they remain useful books and booklets to read and pass on to others.

However, the U.K. evangelical scene continues to be dominated by theistic evolutionary teachings. This continues to be the position of the leaders of the UCCF graduate study group, Christians in Science (CIS), although creationists are certainly in membership. The decision made by those members of the Theological Students Fellowship in 1976 to form BCS seems to have been vindicated. Freedom to develop the biblical creation approach within UCCF was never a realistic possibility. CiS can be regarded as the main contemporary opinion-forming organisation in the U.K. on these issues—few Christian leaders venture to differ from the team of professors and other senior academics that are associated with this organisation. Consequently, other influential organisations such as Spring Harvest and Christian Impact have been very reluctant to allow a creationist voice to be associated in any way with the work they are doing. For similar reasons, a creationist voice is shut out of many Christian periodicals. These are quite difficult barriers to overcome!

It is significant to me that most of the organisations showing support for or interest in creationism belong to the nonconformist tradition. Perhaps this review is not the place to develop the point, but readers may like to reflect on the following. Creationism has had a sympathetic treatment (ranging from positive support to openness) from the Christian newspapers *Evangelical Times*, *Evangelicals Now*, the journal *The Sword and Trowel*, the publishers Evangelical Press, the Banner of Truth Trust and Grace Publications, and from Christian leaders such as Dr. Martyn Lloyd-Jones and Dr. Francis Schaeffer. All of these organisations and individuals have shown a willingness to question and break with establishment thinking.

A major problem that creationists face in getting the message across is that the Christian community at large tends to compartmentalise issues—and the creation/evolution issue is regarded as a non-issue! Some consider that the answers were worked through in the last century, when many Christian leaders came to the conclusion that Christianity and Darwinism could be reconciled. Some consider that creation/evolution is too complex for them, and the problems need to be settled by specialists. Still others are too busy with other aspects of life, and hand this problem over to the Christian leaders they respect. The challenge we bring to all these

groups is that the biblical teaching on Creation is foundational to our understanding of the world and our understanding of salvation. Our secularised culture regards the gospel as irrelevant, and much of this perception can be traced to the way the message of the early chapters of Genesis has been discarded as a myth. Our *Creation Manifesto* attempts to restate the relevance of Creation to the thinking of ordinary Christians. We must persevere with this ministry for it is one which addresses the deep needs of our culture.

Successes and Shortcomings

Looking back, we can point to a valuable archive of articles, comment and analysis in the literature we have produced. We are in a position to put resources into the hands of people with questions. However, the number of people who actually read what we publish is limited! We are not getting the message out to the extent that we desire. People outside BCS may pick up our literature—but then they put it down again thinking that they are not equipped to handle these things. This is even true of students: we have not made the impact we would wish for in university circles. We have so much to communicate, but finding the right way to get the message out is difficult!

Over the years, BCS has seen steady growth, but for some time now this has plateaued. We continue to gain members—but we lose others and the net increase is small. Furthermore, we are seeing only a slow growth in active members. We greatly value all members, but a Society like ours needs more people who can give time to speaking, writing, thinking and praying.

Several creationist groups are active in the U.K. Apart from BCS, I will mention the Creation Science Movement (the new name for the much-changed Evolution Protest Movement) and the Creation Science Foundation (U.K.) (the U.K. base of the Australian parent organisation). We have far more in common with these groups than differences, and this is a cause of thanksgiving to God. The level of creationist activity in the U.K. is higher as a consequence. However, the situation does create some confusion—as is evidenced by not infrequent questions like: 'Why not get together?' The thought is that the creationist cause would be stronger and healthier as a result. My own view on this is that we have to be realistic about differences as well as areas of agreement. We want to emphasise the latter: this was one of the motivations for preparing the *Creation Manifesto*. It offers a basis for expressing unity among creationists. Yet we must be honest in recognising different goals and different ideas about effective strategy. To give just one example: some creationists like a crusading style of public ministry and a platform in which 'six 24-hour days of creation' is a central part; others feel that the issues are actually more complex and that a more exploratory style is needed, where issues are opened up and people are encouraged to look for answers in the right place. The character of organisations depends so much on leadership, activists and opportunities.

My personal vision for future collaboration with other organisations involves networking. Meetings to establish the basis on which organisations can join forces tend to be time-

consuming and unproductive. Networking allows organisations to recognise common interests and to behave positively towards each other. Personal relationships are quite important in networks—and it also means that the bridges between the different groups are not all through one individual. BCS already plays its part in networking with other organisations. Two recent examples come to mind: we have taken a close interest in the burden that some have for a creationist museum in South Kensington. Several BCS committee members are closely involved with the new organisation that has been set up to promote the project: The Genesis Agendum. We are glad to say that this group also believes strongly in the value of networking! Another example of the strategy is to give active support to the European Creationist Congress, which brings together people from many different countries.

We get a few media opportunities every year. These are mostly on local radio, but very occasionally we have got into the national TV/radio/press. Again, this area falls short of our ambitions, but to make more of an impact we need more people with expertise, more activists who can be called on at short notice, and more gifted individuals who know how to communicate effectively.

BCS is a society of members who share convictions on the vital importance of the biblical teachings on origins. During my 20 years of association with the Society, I can testify to the integrity of the Christians involved in this ministry. Although

we are a para-church organisation, I have never noticed BCS members opting out of church life, or using BCS as a substitute for church fellowship. The quality of Christian living evident in the leaders of the Society gives me cause for thanksgiving to God. It constitutes one of the greatest encouragements I have had as a creationist.

The *Creation Manifesto* is the nearest thing we have produced to a 'platform', on which we base our activities. Apart from that, we all have our individual views and there is no such thing as a 'BCS position'. So my comments here represent my personal reflections on the past 20 years. I have written them hoping to stimulate thought, prayer and praise. I hope also that members of the Society will reflect on future activities. How are we going to win the minds of our fellow believers? How are we going to see a ground-swell of opinion towards creationism in the churches? How can Christians in the university sector be effectively reached, challenged and supported? How can we minister to Christian teachers and Christian students? How are we going to bring the gospel message effectively to unbelievers? What should we be doing to get our message into the media and out into the community? An individual cannot hope to be involved in all aspects of this, but a society of individuals who are led by the Spirit of God can! Here is an army that can fight on many fronts, gaining victories in the power and in the Name of their Commander!

Reader's Viewpoint

Ewan More

RECENTLY, Richard Holloway, a bishop in the Episcopal Church of Scotland, outraged creationists and evolutionists alike with his comments. He claimed that adultery was not a sin and that human beings have a genetic sexual urge to procreate as much as possible.

He was quoted as saying that God had given us 'promiscuous genes'. At a press conference he said, 'At a sub-personal level, we have no conscience about these things. At a reproductive level we were programmed to spread the species, but as we evolved it clearly came into conflict with other values that are more important, so tension was created.'

In reading Richard Holloway's comments it is obvious that he is widely read in the field of evolutionary psychology and has not limited himself to the study of theology. In his comments, the bishop has sought to use evolutionary theory to comment on the Bible's teaching.

The bishop has put his finger on a very real issue—the traditional evangelical teaching on human nature is at odds with evolutionary thinking. If (and I will return to that 'if') man did evolve from the apes, then his moral code and social structures such as the family unit must have evolved along with him. This is not what is recorded in the Bible, which speaks of man's creation as a fully formed, morally responsible being. There is a very real and irreconcilable conflict between the two views.

What happens in such a conflict is that we fall back on our presuppositions—the view that we are more familiar with and

have accepted. For the bishop, this is evolution. He is happier with evolution than with traditional evangelical thinking. He accepts the basic idea of our evolution from apes and uses that 'world view' to re-interpret his theology.

Evangelical Christians have been experiencing similar difficulties in reconciling the two views of man's origins. Some of us, however, have been happier with our biblical presuppositions. This has led us to look more closely at evolution. Under close examination, the cracks in the theory become visible. Using information gleaned from the Bible, it has been possible to reinterpret the basic facts of biology and geology to develop a biblical model of creation which is both scientifically and biblically credible. (Hence the *Biblical Creation Society*!)

World views are just that! They are all-encompassing and seek to subsume all other theories. Our mistake as Christians is (1) not correctly identifying evolution as a world-view and (2) accepting its premises as fundamentally true. Once accepted as true, those evolutionary presuppositions will undermine our faith as has so evidently happened in this case.

How does a Christian enter this argument about human evolution? He does not! We cannot accept the starting point of the argument as true—namely, that man evolved from the apes. The Bible teaches creation and once freed from evolutionary presuppositions, there is abundant evidence to support that view.

Attitudes between the Secular Scientific Community and Creation Science in the Earth Sciences

David J. Simm

CREATION SCIENCE is often given a 'bad press' in the secular scientific community and its literature, particularly in the earth sciences. Is this really justified? And is it possible for creation scientists to overcome such prejudices? Answers may lie in increased dialogue, without the need for compromise, between the two groups.

The Context

In the secular scientific community, which is predominantly composed of evolutionists, creationism is widely portrayed as being very much out on a limb. There appears to be little patience and, at times, little sympathy and respect for creationist ideas in, for instance, the biological and geological sciences.

A certain degree of animosity is often displayed between creationism and the secular scientific community mainly because creationist theories are seen to be incompatible with contemporary scientific theories, notably with reference to those of organic evolution (which incorporates palaeontology, the study of fossils), historical geology (stratigraphy) and plate tectonics (the splitting and movement or 'drift' of the continents). Some creationists suggest that many students with a creationistic upbringing reading geology and biology at university are 'brainwashed' into compromising their literal views and inevitably turn to theistic evolutionism. Such differences and animosities have, occasionally, in the past deteriorated into moral and religious slanging matches. This has been, in part, caused, firstly, by historical differences founded, for instance, in the church and its control of science and scientific development. Secondly, it has been affected by blinkered viewpoints from both the creation science and evolutionist communities. Thirdly, there have been numerous accusations of malpractice and prejudice in scientific study, and of flaws in scientific procedure and philosophy. This article addresses the academic perspectives and attitudes between the two communities. Cautionary remarks concerning the attitude of the secular scientific community towards creation science, and *vice versa*, are raised.

Differences of Opinion

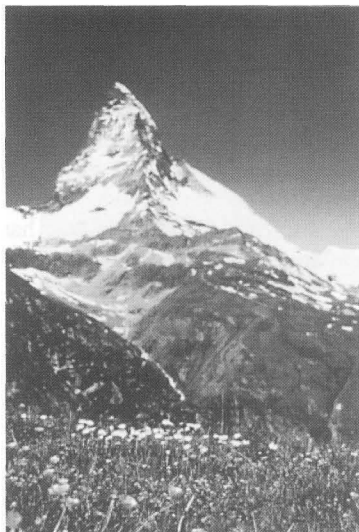
One of the main contentions is the existence of God in scientific theories. Both groups argue that the other is doing 'bad' science. The secular scientific community argue that the creationists, in adopting a literal reading of the Bible, take a blinkered perspective because of continual referring to the biblical account when 'stuck for explanation'. Standard scientific procedure is to take a deterministic stance, by adopting the

simplest explanation of the facts. On the other hand, creation scientists claim that it is not the raw data that is wrong, but the interpretation of this data. They argue that the evolutionists adopt the most basic explanation without consulting the Bible, and therefore fail to acknowledge the possibility of deity in their theories. It is true that if the simplest explanation was 'compatible' with the Bible, the creationists' possibilistic view would be accepted. However, this can never be the case because science cannot prove the existence of God and so God can only be included as an unknown variable, rather than the central theme as with creationism. Thus secular scientists exclude divine intervention and so keep their theories within the present understanding of mankind. This, the creationist would argue, displays a lack of faith. A compromise does exist between the two camps in the guise of theistic evolutionism. Creationists, however, refute the ideas and theories of this faction, accusing them of 'selling out' to secular science. The attitude of the scientific community towards theistic evolutionists is one of tolerance, as long as they adhere to the basic scientific rules and procedure. In contrast, creationists often receive rough treatment and criticism at the hands of the secular scientific community.

The pure sciences do not tend to concern themselves with spiritual aspects since they generally involve study of contemporary processes. Only two scientific disciplines, cosmology and the computing sub-discipline of Artificial Intelligence, have in recent times contemplated the role of God (Tilby, 1992). However, biology and geology are the two scientific disciplines where greatest conflict appears to occur.

After continual debates over the existence of God, friction also ensues in the geological and biological sciences concerning the second largest 'bone' of contention, that of time (Baker, 1986). The main area for contention is the Law of Uniformitarianism (the concept that past processes have operated in the same manner and, generally, at the same rates as at the present day). This is a mainstay of geology. The geological timescale is an integral part of the theories of evolution and plate tectonics. Time is an integral component of evolution (represented by palaeontology) and plate tectonics.

The secular scientific community claims that many of the ideas and theories favoured by the creation scientists are absurd



because the processes involved are too slow (at contemporary rates) to be realistically incorporated into the relatively short and restricted timescale of creationism. They commonly cite numerous examples from the account of Noah's flood, for instance, the catastrophic uplift of mountains during the relatively short period that floodwaters covered the Earth's surface. Creation scientists defend themselves by reaffirming their belief in divine intervention (since with

God anything is possible). But the secular scientists argue that the field evidence does not fully support such rapid catastrophism. However, the creationists retaliate by claiming that the Law of Uniformitarianism does not stand up in secular theories. There is increasing evidence that atmospheric and surface conditions, and consequently geomorphological processes, have varied in the past. Examples from secular science include, firstly, the effect of plate tectonics on the proportion of land to ocean. For instance, the distribution of large shallow seas on extensive continental shelves during the Jurassic is now believed to have resulted in changes of climate and in the chemistry of the oceans. The precipitation of aragonite as opposed to calcite in calcareous shells of marine organisms as a result of this is a well documented geologic case. Secondly, during the Quaternary (Pleistocene) Ice Age, the vast expanses of continental ice sheets, which developed periodically over North America, northern Europe and Asia over the past two million years, themselves dramatically changed the climate, both in high and equatorial latitudes, and the amount of nutrient cycling. For instance, it is well documented that periglacial environments were significantly different from those of the present. In fact, there are no real analogues of the Quaternary continental ice sheets. Their effects can only be deduced indirectly from sedimentary and biological evidence. Thus, in the geological past, certain processes were more dominant than at the present day, and in some cases there are no modern analogues of certain processes. Thus secular scientists have to make careful judgements when reconstructing the past. Creationists use this apparent 'inconsistency' in the Law of Uniformitarianism to fuel their argument of divine intervention during the Noachian Flood. The secular scientific community retaliate by stating that the creationists are taking their arguments out of context. They argue that although rates have changed in the geologic past, the physical laws have remained consistent, and only the environmental circumstances and responses have varied. Consequently, they defend the Law of Uniformitarianism.

The evolutionists also claim that the creation scientists do not even support some of their theories with scriptural material, citing, for instance, that there is no mention of Ice Ages in the Bible. Creationists could argue that, in the eastern Mediterranean, the effects of the Ice Age would have been favourable because the deserts were transformed into fertile regions due to the equator-ward displacement of climatic zones by the development

of continental ice sheets in mid-latitudes, particularly in the northern hemisphere. The questions which creationists should be addressing are the multiple Ice Ages and their glacial deposits which the evolutionists claim have occurred on average every 200 million years. Once again the major contention is the timescale. Whitcomb and Morris (1961) conjecture that the Ice Age occurred as a natural consequence of the Flood when the Earth was out of equilibrium and lasted for only 500 years or so. To evolutionists, this appears to be absurd and thus they argue that the creationists are merely slotting things into place without thinking through the temporal perspectives of the processes operating. The creationists argue that divine intervention produced the catastrophism during the Great Flood, but were physical processes naturally accelerated as a result of the Flood if the Ice Age is to be placed subsequent to the Flood? The debate over the accuracy of dating methods is crucial to the controversy over timescales. The evolutionists claim advancements in dating (in particular radiocarbon and uranium-lead techniques, dendrochronology (tree-ring counting), *etc.*) negates any arguments from the creationists of a young Earth. Of course, the creation scientists question the accuracy of most radiometric dating methods (Baker, 1986).



Colombian Icefield in the Rockies, Canada

Evolutionists will always argue that the creation scientists have a 'convenient answer' for everything by stating that there was catastrophic change by divine intervention and that God had created a mature Universe (*i.e.* that things look older than they really are because God created them that way). (However, creationists have to be careful when defending this position since, it may be asked, how can the latter be the case if everything was destroyed by the Flood?). Thus evolutionists persist in condemning the creation scientists for readily slotting things into the biblical account without questioning each stage of the process—this, evolutionists argue, abuses the rules of scientific investigation. The fundamental rule of present secular scientific practice is to adopt the simplest explanation for the data acquired, whereas the underlying principle for the creation scientist is that everything was created by God as recorded literally in the Bible. However, the scientist, regardless of philosophical background, should strive to overcome any bias and subjectivity that may creep into his or her measurements and observations. The supposed failure by both camps to overcome this point is used as ammunition against the opposing viewpoint. Creationists, in the extreme, may accuse the secular scientists of being anti-deity by not including God in their theories. The

theistic evolutionists have (partly) overcome this point, but debate continues as fervently as ever.

However, as repeatedly demonstrated throughout history, scientists may lose sight of the fact that their theories are only simplifications of the real world. The 'simple theory' philosophy, regardless of whether it is basically correct or not, can never be complete since man's understanding of physical and biological processes is limited. Man is continually discovering new things. In nature, although basic principles are commonly simple, it's intricacies and inter-relationships are often so complex that they are beyond the comprehension of mankind.

One accusation that can be levelled at all scientists is that in scientific research there often exist 'bandwagons' of knowledge. These are the current popular themes and concepts, for instance organic evolution and plate tectonic theory, which often serve to provide holistic, unifying models of reality (called systems). Into such theories some scientists are content to slot their results, which may lead to a certain degree of prejudice. Historically, entire bandwagons may be completely refuted by fresh evidence and revolutionary ideas, and replaced by new bandwagons. This is especially the case with sciences in their infancy. The classic example is Darwinism, now considered a limited concept by present-day evolutionists, but which revolutionised the biological sciences in the nineteenth century. Similarly, during the eighteenth century, diluvialism was replaced by volcanism and the ideas of Hutton. A more recent example from the geological sciences was the formulation of plate tectonic theory in the 1960's. This replaced the old geosyncline-theory fallacy. It is, however, ill-advised to presume that all bandwagons are wrong—they are merely replaced by more refined and often more elaborate scenarios as the state-of-the-art research progresses with new ideas. Most bandwagons evolve themselves as new discoveries emerge and more advanced technologies arrive on the scene. A good example of this from secular science is the modifications in evolutionary theory from Darwinism in its infancy to the present state of knowledge as a result of advancements in, for instance, the study of DNA (Blackmore and Page, 1989). Whether contemporary bandwagons will ever be replaced again is uncertain, but secular scientists believe that they are on the 'right lines' and that, with continued advancement in technology revealing new data and hopefully promoting greater understanding, the basic theory is correct and will only be modified and refined. Of course, there is the danger that due to ignorance, lack of complete evidence or lack of understanding, misinterpretations can be made which do infiltrate into the accepted body of knowledge. These may persist, possibly in the form of bandwagons, but the scientist should strive to cut off any prejudices and expose such discrepancies with 'good scientific practice'. However, even small-scale bandwagons exist within a scientific discipline, in the form of opposing 'schools of thought'.

Similarly, creationist theories could possibly suffer from a similar 'bandwagon syndrome'. The Bible irrefutably contains answers, but not scientific jargon or detail. A literal reading of the biblical accounts of Creation or the Great Flood has led to contrasting opinions of interpretation. Consequently, as occurs in the secular scientific community, bandwagons may develop. Thus when events are not recorded in the biblical account (e.g. the Pleistocene Ice Age) or are recorded vaguely and open to interpretation as to their meaning (e.g. 'the waters of the firmament' during the Flood) conjecture sneaks to the fore. An example of a nineteenth century diluvialist bandwagon occurred

with the case of the Ice Ages. The diluvialists attempted to simply explain large boulder erratics as boulders transported by the floodwaters of the Great Flood, then modified this idea by transport by icebergs during the Flood. But modern-day creationists generally now follow the secular view that they were transported by glaciers which formed part of extensive ice sheets. Thus, in order to accommodate advances in secular knowledge, the creation scientists' theory of the Flood and its consequences has become increasingly more complicated in terms of the processes operating.

The secular community also accuse creation scientists of 'hijacking' ideas rather than independently researching the evidence. They accuse the creationists of accepting concepts which have little or no evidence in the biblical record, such as the Ice Age, and slotting them into 'convenient' places in their theories.

The research on the Flood by Whitcomb and Morris (1961) has dominated creationist thought for many decades. Although thoroughly researched and considered, many questions, particularly concerning detailed geological mechanisms, remain unanswered and subjective. This is not to say that their ideas are wrong, but, as with any dominating theory, it involves an element of 'bandwagon-syndrome'. The present state of accepted knowledge at any one particular moment in time may therefore be considered as part of the evolution of a bandwagon, being influenced by internal factors such as the general philosophical climate of the subject and historical development of the discipline, and, subconsciously, external factors such as political and social conditions. This has been demonstrated in the past, for instance, during the great upheaval in technological advancement and scientific thought in the nineteenth century.

The Way Forward

So what do creation scientists have to do in order to gain acceptance in the secular scientific community? The creation scientists claim that it is not the raw data that is at fault but the interpretation of this evidence and believe that the data should be interpreted in the light of the biblical accounts. However, by its very nature, creation science research often involves qualitative study and a certain degree of subjectivity. For creationist research to be accepted it needs to play the same 'game' as the scientific community, to be seen adhering to the generally accepted rules and procedure of 'good' science. For instance, material should be supported by scientific data, in particular detailed case studies. In many parts of geology there has often been an obsession with multiple case studies by scientists which has led to pigeonholing of research, so that academic thought in some instances becomes stale until the next 'big' scientific discovery is made, or has led to the proliferation of certain bandwagons. Case studies remain an effective and objective mechanism for reporting material in 'imprecise' sciences such as geology. (The pure sciences instead adopt quantitative experimental work, but the timescales adopted in geology and palaeontology mean that findings are often qualitative and interpretative instead of definitive.) In contrast to the plethora of case studies in the secular geological field, creation scientists have tended not to address detailed studies, preferring to adopt the data in circulation and reinterpreting it to formulate grand unifying theories (systems). Obviously this is, in part, due to the minority number of creationists compared to the secular scientific community at large, but also because of a



Fossil of a fish eating a fish

timidness by creationists to address the secular world on its terms. Notably, in the earth sciences, only Whitcomb and Morris (1961) and Austin (1994) have included some detailed examples to illustrate part of their theory. The biblical accounts do not include scientific detail, either because they were deliberately simply and clearly written in layman terms or because of the limited level of the understanding of science (as we know it today) at the time of its writing. Consequently, creation scientists tend to generalise. Once creation scientists address this problem, the closer they will come to earning some respect in the eyes of and acknowledgement from the secular scientific community.

Detailed case studies would be particularly useful, for instance, in fossil stratigraphy. Many generalisations have been made by creationists based on textbook material, rather than detailed research material. There is, firstly, a notable lack of material written on the crucial issues in geology, although the situation is significantly better on the biological side. Secondly, as a result of these generalisations, some concepts are not addressed, but the situation is slowly being remedied. Thirdly, there has been reliance on outdated literature. For instance, in Whitcomb and Morris (1961), the chapter covering the shortcomings of the geological aspects of secular theories is outdated because the last reprint was before plate tectonic theory came to the fore as a unifying theory. Consequently, their discussion of geosynclines is no longer valid because this concept has been made redundant. This consequently proves a starting point for criticisms from the secular scientific community.

Thus creationist scientists, in particular with reference to the biblical Flood, need to publish detailed geological and palaeontological case studies and to reconstruct detailed Flood histories 'section by section' (Garner, 1994). They need to reinterpret in detail the sedimentary sections published in order to show the scientific community that alternative theories can be applied to the geological record. Ultimately, this needs to be backed up with appropriate laboratory evidence and modelling.

Conclusions

As can be seen, this is a very emotive subject. Creationism has tended to be ostracised by the scientific community at large. The possibilistic argument from the creationists, with which the secular scientific community must agree, is that the real story is more 'complex' than the evolutionists can presently comprehend. This is because nature (whether divinely created or not) is more complex and subtle than present understanding and man continually discovers new facets in his quest for knowledge. Most scientists will acknowledge the limitations of their knowledge and imperfections in scientific procedure and measurement

resolution and accuracy, data quality and quantity and often speculative interpretation involved in even the 'purest' of scientific disciplines, and also ignorance because of lack of understanding about things which have not (yet, if ever) been discovered. The theories of both camps may break down at any stage due to ignorance, malpractice or prejudice. Each perspective may be prone to influences leading to bias in interpretation. The good scientist from both camps should be able to distance him- or herself from these prejudices and influences. However, subjectivity is, to a certain extent, inevitable because of subconscious reasons, such as personal upbringing or education, and the existence of bandwagons.

In conclusion, there can be no definite, irrefutable answers. Creation scientists and evolutionists differ only in their outlooks to scientific interpretation. They agree on the data collected, but fervently debate the interpretation of that data. The theories of the creation scientists use the biblical accounts as a starting point, whereas the evolutionists base their work on the simplest explanation of the available facts. The creation scientists are working from the 'complex' end of the spectrum, whilst the evolutionists are working from the 'simple' end. However, this does not imply that the theistic evolutionists, by being placed in an apparently compromised position between the two extremes, are any closer to the truth than any other party. This uncertainty imparts richness and variety into scientific investigation and, indeed, life.

Thus it is important to consider the attitudes between creation scientists and the rest of the scientific community. The creationist needs to understand the thinking of the rest of the scientific community and to be abreast of scientific developments. Differences need to be addressed if creation science is to attain more respect and standing in the secular scientific community. This does not necessarily mean compromise, but rather an opening of perspectives and improved dialogue between often contrasting perspectives.

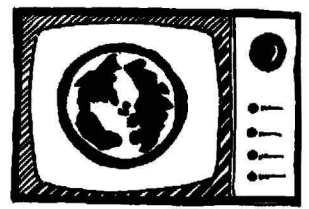
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Creation in the News



Impressions of the Third International Conference on Creationism at Pittsburgh, Pa., 18–23 July 1994

Steven J. Robinson

THE CONFERENCE was held, as before, at Duquesne University, a Catholic institution that tolerated rather than endorsed the beliefs of its creationist guests. These probably numbered about three to four hundred, of which only a few came from overseas.

The British contingent consisted of Paul Garner, Sheena and David Tyler and myself; we also bumped into Geoff Chapman once or twice—he had been holidaying in the area before the Conference started and was not staying on campus. The vast majority were Americans, reflecting the much greater following that creationism has in the States, and the fact that they think less of travelling to Pennsylvania from California than we think of travelling the not much greater distance from London. About a third of the participants followed the Basic Track, designed for those who had either a fairly scanty knowledge of creationism or none at all. By all accounts this was excellent. The speakers were leaders in their particular fields, and there was no sense in which the Basic Track was treated as peripheral to the main objectives of the Conference.

As regards the Technical Track, I came away with mixed feelings. Some of the presentations were good, a few were excellent, a number of them uninspiring. Not that one would wish to blame the organisers for the uneven quality—they could only work with the material submitted to them, and, as it was, they rejected a considerable proportion. During an evening session held specifically to emphasise the need for creationists to set the highest standards, the review committee reported that they sometimes had difficulty in finding suitably qualified referees. Nonetheless, because all talks had to run concurrently with others, there was scope, I believe, for weeding out more than they did. I summarise a few of the talks to give a flavour of the Conference.

Russell Humphreys gave two presentations. The first was entitled *A Biblical Basis for Creationist Cosmology*. In this he took us through the first 4 days of Creation Week

and argued: (1) the expanse or firmament is not the earth's atmosphere but interstellar space, (2) the waters above the expanse are cosmic in scale and constitute a boundary for interstellar space, and (3) the earth is near the centre of the universe. This novel scenario, which was received with much excitement, depended entirely on the interpretation

of *samayim*, the Hebrew dual which is translated 'heaven' or 'heavens' (singular or plural are not distinguished). Thus, on Day 2 God separated the waters, so that there were waters below the expanse, which he called Seas, and waters above it; and He called the expanse *samayim*. What was this expanse? Humphreys argued that it could not be the atmosphere round the earth because the sun, the moon and the stars which God

made on Day 4 were placed 'in the expanse of the *samayim*'. Everyone knows that the stars are not 'in' the

atmosphere. Therefore *samayim* must mean the celestial heavens -i.e. interstellar space.

The problem with this argument is that there are dozens of verses in Job, the Psalms, Isaiah and elsewhere which make it clear that the primary meaning of *samayim* is, in fact, the atmosphere. When in other places the Scriptures speak of 'the stars of heaven', the word is used in a secondary, extended sense, meaning all space above the earth, just as *erets*, the Hebrew for 'land', can also mean the whole 'earth'. *Samayim* carries more than one meaning, as do many words, and in the first chapter of Genesis both meanings are used, as should be clear from the fact that the sun, moon and stars are said to be 'in' the heavens! Except that the text does not say 'in the heavens', but 'in the expanse of the heavens'. Since on Day 2 the expanse was given the name 'heavens', this phrase either means 'in the expanse of the expanse' which is nonsense, or it refers to



Dr. D. Russell Humphreys, Dr. Andrew Snelling, Dr. John Baumgardner, Dr. Steven Austin, Dr. Kurt Wise, Dr. Larry Vardiman.

an expanse distinct from the heavens of Day 2.

In his second talk, *Towards a Young-Earth Relativistic Cosmology*, Humphreys built upon the foundations laid in the first talk. If the universe is bounded, then we can put those boundary conditions into the equations of Einstein's general theory of relativity. The result is an expanding cosmos in which clocks (and all physical processes) tick at different rates in different parts of the universe. Humphreys postulated that in the beginning God created a universe-wide 'white hole', *i.e.* a black hole running in reverse, with a shrinking event horizon and matter expanding out of it. At the event, horizon clocks were momentarily stopped relative to clocks further out. On the fourth day of this expansion the event horizon reached the earth and the 'clocks' there were also momentarily stopped. Thus, while billions of years elapsed in the distant heavens, light from the stars reached the earth within one terrestrial day. According to this theory—which also seemed to explain galactic redshifts and the cosmic microwave background—the age of the universe as measured by terrestrial clocks might be no more than 6000 years.

In Bernard Northrup's talk, *Some Questionable Creationist Axioms Re-examined*, we were again led through the first chapter of Genesis. Here the exegesis was generally sounder, and it was good to hear someone remarking that the first verse refers to creation *ex nihilo* distinct from the forming and making of Days 1–6, that the verse chronologically precedes Day 1, and that, indeed, the first day could not have been measured if the earth had not already been in existence. But then Northrup also struggled with the meaning of *samayim* and the problem of how the stars could be 'in' the heavens. His solution was to suggest that the rotation of the earth gradually speeded up over the first 4 days. The waters became separated above and below the expanse as a result of this acceleration, and the 'lights' in the heavens were merely the blurred images of the celestial bodies in the upper waters!

Steven Austin delivered a paper on *Discordant Whole-Rock Isochron 'Ages' for Selected Grand Canyon Rocks* with particular reference to the rubidium-strontium and samarium-neodymium dating methods. By collecting and sending rock samples 'blind' to university laboratories and then converting the results into radiometric ages, Austin has, over the past few years, doubled the previous number of radiometric dates for the Grand Canyon. These show that while any method will generally produce a self-consistent set of determinations (called an *isochron*), the application of another method, using different elements, to the same rock will produce determinations that yield a completely different age. None of the ages, moreover, agree with the ages assigned to the rocks on the basis of the accepted chronology. In the case of certain basaltic rocks from the Uinkaret Plateau, the radiometric age calculated by Austin comes out at 1.34 billion years, although they are known to be among the youngest rocks in Arizona.

Such results are, of course, music to the ears of those who believe that the methods of geochronologists are just an exercise in manipulation. However, none of the dates

obtained came even remotely near 6–7000 years, and there was no prospect that any would. For the creationist who believes, on other grounds, that the earth is relatively young, this is a problem which the enormous discrepancies between one isochron age and another in no way mitigate. (The discordant isochrons are discussed in *Grand Canyon: Monument to Catastrophe*, edited by Austin and published in 1994.)

Another interesting paper was by Steven Austin and Kurt Wise on *The Pre-Flood/Flood Boundary as Defined in Grand Canyon and East Mojave*. Their main conclusion was that the boundary should be located at the Great Unconformity at the base of the Cambrian. This was not a new idea. But they also reported on a concentration of Ediacaran (late Precambrian) fauna in East Mojave, which they also assigned to the first days of the Flood. Locating the margin of the pre-Flood continent well inland from the present margin, they understood the Flood as beginning with an inundation of the land by the sea (rather than with an eruption of water from under the land) and attributed the dip of the Precambrian strata to the subduction of ocean floor along that margin.

Austin and Wise also collaborated with Humphreys, John Baumgardner, Andrew Snelling and Larry Vardiman on a paper which offered *A Global Flood Model of Earth History*. This was based on a foundation of plate tectonics, the speakers suggesting that the Flood was responsible for all large-scale plate-tectonic movement in geological history, certainly to the end of the Cretaceous.

The model seemed fraught with problems. For one thing, most or all of today's ocean floors were formed during the Mesozoic and Cenozoic; there is thus no evidence for the fresh ocean floor which, according to the speakers, formed during the Palaeozoic. Whereas rapid subjection was postulated as ceasing around Day 150 of the Flood with the stopping of the fountains of the deep, the reverse appears to have happened! Indeed, most of the Atlantic is a product of seafloor spreading during the Cenozoic, which the speakers regard as post-Flood.

What were the fountains of the deep? Austin *et al* suggested that the term described great explosions of water and steam which occurred when molten magma at the subduction zones came into contact with the sea at the beginning of the Flood. But Genesis states that all the fountains of the deep 'broke open'; they existed before the Flood (Prov 8:28) and therefore cannot be explained as its effects. Moreover, other scriptures imply that 'the deep' was distinct from the primordial 'seas' and existed underneath the land. We cannot assume that the original landmass was constituted similarly to the present continents.

The concept of 'runaway subduction' was elaborated on by Baumgardner in two separate talks entitled *Computer Modelling of the Large-scale Tectonics Associated with the Genesis Flood* and *Runaway Subduction as the Driving Mechanism for the Genesis Flood*. These seemed to envisage an initially slow process which gathered momentum as higher speeds led to reduced viscosity and greater convective flow. Whether this process could have resulted in the whole earth being submerged within 40 days

remains to be seen.

In relation to these papers on the Flood, Paul, David and I were all very much outsiders, being convinced that the Flood ended earlier in the geological record - well before the end of the Palaeozoic. In conversations Paul plugged away several times with the fact that dinosaur nests occur in the Mesozoic, often at successive levels, indicating flourishing life on the land: the Mesozoic was not a time of universal inundation. How could dinosaurs which perished within the first 40 days have laid eggs on top of deposits kilometres thick, laid down in the Flood itself? Michael Oard promised us a paper which would solve the problem.

David Tyler made his contribution to this debate by speaking on the *Yorkshire Jurassic*. His talk was mostly concerned with showing how the geological faults in the region influenced sedimentation and were initiated by catastrophic processes, the whole picture suggesting that the rocks were formed over a very brief period. On the other hand, the Jurassic record contained a succession of root fossils which, because they entailed the passing of several seasons, were not compatible with the idea that the Jurassic was laid down in a few months during the Flood. This contention became the focus of the subsequent discussion, and there was strong resistance to it. The preferred explanation was that the roots had been upright when they floated in, and were buried upright as sediments collected round them. Harold Coffin had done experiments which confirmed that horsetail stems similar to those observed in Yorkshire would float upright after prolonged immersion in water. While David rebutted this explanation by pointing out that the roots penetrated more than one bed, it was perhaps unfortunate that so large an idea had been hung on such small evidence. Given that the 'European' Flood chronology is still unfamiliar to most Americans and has never been presented in any comprehensive way, the resistance was understandable. Encouragingly, in private discussions Austin, Snelling and Wise all signified that they were not irrevocably committed to the 'American' chronology, and did not wish to discourage debate on the matter.

Sheena Tyler spoke on *The Genesis Kinds: A Perspective from Embryology*, in which she showed that various data from this field favoured a typological, *i.e.* non-evolutionist, approach to the problem of how to classify organisms. Unfortunately I did not attend the talk, as, needing a respite that afternoon, I joined Paul and John Morris on a wander among the dinosaur exhibits of Pittsburgh's Carnegie Museum.

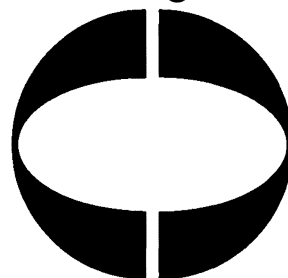
Another Briton who spoke well was Keith Davies. His subject was the *Distribution of Supernova Remnants in the Galaxy*: one of the most powerful evidences that the universe was formed very recently. Since one supernova event occurs about once every 25 years in our galaxy and the theoretical lifetime of an SNR is about 2 million years, the number of SNRs in our galaxy should give us a good indication of whether it is young or old. If there were around 80,000 of them (the maximum theoretical number), it would be reasonable to suppose that its age exceeded

2 million years. In fact, we have identified about 300, consistent with an age of about 7,000 years, if—which is not likely—supernovæ were occurring at the same rate ever since the creation of the stars. Other galaxies in the universe tell the same story. As astronomers openly acknowledge in their journals, the paucity of SNRs in relation to the supposed age of the universe is one of their most vexing problems.

The greatest highlight of the Conference, for me, was the closing address by Siegfried Scherer, Professor of Microbial Ecology at the Technical University of Munich. In the first part he described how he and others had spent two years researching into whether one type of single-celled organism could evolve into another type. In the end the evidence suggested that such evolution might have occurred! To an avowed creationist like Scherer this conclusion was a disappointment, but what should one do in the face of such results? If creationists are to practise good science, it is incumbent on them to recognise that the evidence is not always on their side, and that evolutionism is not an intellectually indefensible position. Sometimes—indeed, many more times than not—our researches will support a belief in special creation. But at all times creationists must be objective, honest, cautious, and courteous. We do not have all the answers. And where we do have the answers, we must love our opponents and win them over as much by how we argue as by what we argue. Our faith does not depend on the extent to which scientific evidence supports the Genesis record; it depends on a spiritual relationship with Jesus Christ. He is the Lord. If we are not to work in vain, the worker as well as the work must reveal His glory.

To judge from the talks which I attended, I can confirm that speakers at the Conference did refrain from rubbishing their absent opponents. On the other hand, research and argument were not always of the highest standards. Directed at the creationist movement as a whole, Scherer's message was, I think, both salutary and timely, and from the warmth with which it was received it was clear that many others thought so too.

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Reviews



Creation and Time: A Report on the Progressive Creationist Book by Hugh Ross. Mark Van Bebber and Paul Taylor. Eden Productions (2628 West Birchwood Circle, Mesa, Arizona 85202). 1994. 128pp. £4.50. ISBN 1-877775-02-9

Reviewed by Paul Garner

THIS new publication is a critique of a book by astronomer Dr. Hugh Ross, a vocal proponent of progressive (old earth) creationism in the U.S.A. Perhaps few Christians in the U.K. will be familiar with Dr. Ross and his book, although the essential elements of the old earth creationist position will be well known to many readers. The progressive creationist case has been argued by Dr. Alan Hayward, for instance, in his *Creation and Evolution: The Facts and Fallacies* (Triangle, 1985).

The critique by Van Bebber and Taylor addresses itself primarily to Biblical and theological issues, and avoids the scientific debate. The authors inform us that others more qualified are currently preparing a scientific response to Dr. Ross (p.105). Van Bebber and Taylor examine Ross' view of revelation in nature, the paradisaical state of the original creation, the origin of death, the extent of the Flood, the order of the creation events, the days of creation, and the age of the earth. The authors argue that in constructing his case for an extremely old universe, Ross has misinterpreted and misapplied Biblical texts. He is also shown to have misrepresented the views of the early Church Fathers. This section of the book will be helpful in answering the claims of other writers, such as Roger Forster and Paul Marston in *Reason and Faith* (Monarch Publications Ltd., 1989, pp.204-207).

Dr. Roy Clements of Eden Baptist Church, Cambridge, said recently that too few Christians recognise the possibility of some middle ground between theistic evolution and young earth creationism. 'It is conceivable to be an 'old earth' creationist' he argued (*Evangelicals Now*, October 1994, p.2).

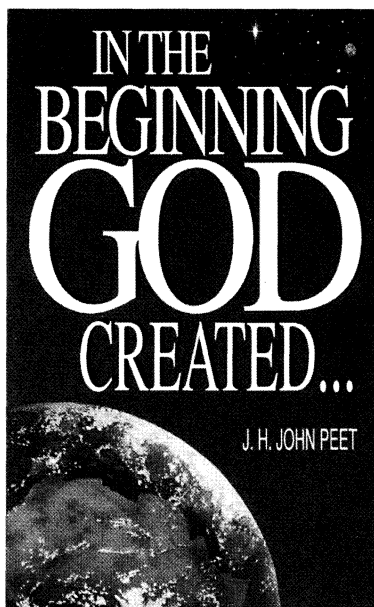
I agree. It is conceivable. But in view of the case presented in Van Bebber and Taylor's book we must seriously question whether it is Biblical.

In the beginning GOD created ... J. H. John Peet. Grace Publications. 125 pp. £4.95. ISBN 0-946462-31-3

Reviewed by David C. C. Watson.

CHRISTIAN writers on Creation are now common as blackberries and can be divided into two classes: (1) those who accept Genesis as historical truth, (2) those who believe in the Big Bang and evolution and try to reconcile these with Scripture. John Peet (MSc, PhD, FRSC), a teacher of chemistry to degree level, emphatically belongs to the first group.

John Peet is non-polemical and must be almost unique in never mentioning Charles Darwin or any of his followers. He aims at being 'positive', with strong emphasis on the Bible and enough science to reinforce divine revelation. 'We believe that the biblical doctrine of creation is not only scientifically consistent but is scripturally necessary and is a consistent part of the whole body of theology' (p.102).



Peet does not claim originality and most of his arguments can be found in other books: design in Nature; literal six days; Adam distinct from the animals; sin the cause of physical death; fossils laid down by the Flood; a young earth; the importance of Exodus 20:11 for ethics today and 2 Peter 3 as a warning of coming Judgment. (If you are bored with Pekin Man & Co., be thankful that they are not featured here). His expertise in chemistry produces helpful

appendices on the Cell, Carbon-14 and Rock-dating.

There are 22 illustrations and a short index. Altogether this is excellent for the layman who wants a concise, readable manual of facts to support faith; for young Christians who have been misled by Dawkins and Attenborough and (sad to say) *by evangelical leaders* who are themselves the victims of ceaseless evolutionary propaganda. Any church library would do well to stock a copy.

(Reproduced from *The English Churchman*, 22 Lesley Avenue, Canterbury, CT1 3LF. July 8-15, 1994 by permission).

The Creationists: The Evolution of Scientific Creationism. Ronald L. Numbers. Alfred A. Knopf, New York. 1992. 458 pp. ISBN 0-679-40104-0

Reviewed by Professor Edgar Andrews

IN the closing paragraph of his book, the author states his conclusion. The 'shocking success' of 'the folk science of flood geology ... shattered facile beliefs about the inevitability of ... scientific progress and called into question long-cherished convictions about the relationship between science and religion.' Regrettably, the bias reflected by these words permeates the whole work and mars what would otherwise be a highly informative book. On the positive side, the monograph is well-written, readable and well-researched. It is a great pity that the author allows his prejudices to colour his presentation.

The book sets out to trace the development ('evolution' says the subtitle in an attempt to be smart) of creationism from the days of Darwin to the present. The author, who is William Coleman Professor of the History of Science at the University of Wisconsin, is well qualified to undertake this task. In his sixteen chapters he covers: the early American creationists such as Frederick Wright, William Jennings Bryan, Arthur I. Brown, Harry Rimmer and their contemporaries; George McCready Price and the new catastrophism; early U.S.A. societies; evangelicals and evolution in Britain and North America; John Whitcomb and Henry Morris; and modern

creationist movements. Although he deals with the people involved, the issues, and with creationist societies and organisations, the approach is heavily biographical.

The treatment is uneven, concentrating almost exclusively upon the North American creationists, especially the Seventh Day Adventists, and giving sparse attention to creationism in Europe and elsewhere. The results are sometimes mildly bizarre; several pages may be devoted to an obscure American, with blow-by-blow accounts of how, where and when he earned (or failed to earn) scientific degrees, while critical developments elsewhere in the world are dismissed in brief paragraphs or omitted altogether. Although the book was published in 1992, neither the European Creationist Congress (which first met in August 1984), nor the landmark Oxford Union Debate in February 1986 (on the motion 'That the doctrine of creation is more valid than the theory of evolution') receive a mention. The only British creationists given meaningful coverage are R. E. D. Clark and A. J. Monty White.

Professor Numbers majors on personalities, highlighting their frailties and relishing their disputes. It would seem that the early American creationists were, to a man, untrained, egotistical, fraudulent, dishonest, and discredited. Of Price we read, 'If he was noticed at all outside of creationist circles, it was for being one of the twentieth century's most persistent scientific cranks' (p.73), while elsewhere in the space of three paragraphs he is lambasted for his 'unorthodox views ... abrasive personality ...', and for being 'arrogant, opinionated, mean-spirited ... extravagant ... even delusional ... condescending ... fanatic' (p.85). There are few if any compensating words of praise.

Why should Price be judged so harshly? One suspects that Numbers has a hidden agenda, for George McCready Price was a Seventh Day Adventist and the 'father' of flood geology, which attributes the fossil record, largely, to the flood of Noah. Flood Geology, and the Adventists in particular, are Numbers' prime targets (he is himself a relapsed Adventist), and he leaves no stone unturned to discredit them. Sometimes the effort borders on farce. What possible historical purpose is served, for example, by writing on p.220, 'Relaxed and jovial among friends, Price amused his associates by cackling whenever he thought he had made a good point'?

Nor is Price the only object of the author's ire. Hardly a page passes in the first half of the book without some gratuitous insult or pejorative remark directed at the subjects of his study. Whitney, co-founder with Price of the Religion and Science Association, was 'characteristically aggressive ... craved the limelight ... constantly plotted ways to recapture the headlines [and was a] self-confessed misanthrope'. He died, records the author with apparent glee, 'when he absent-mindedly walked into a huge dump truck'. The problem for the reader, of course, is that when character assassination is combined with a declared opposition to all that these men stood for, it is difficult to tell where history ends and parody begins.

The book relates how, in the 1930's, creationism began to be promoted by means of groups and societies, rather than merely by individuals as previously. However, we are told little of substance about the work and influence of these groups, since Numbers concentrates on the disputes and

conflicts that arose within them. No doubt there is a lesson here for all, namely that a 'house divided against itself will fall'. However, just as among evolutionists, there will always be disagreements within creationist circles on matters of interpretation and emphasis. These tensions can lead to constructive debate and progress, and are not always as destructive as the author suggests. The chief argument was that between the 'ruin/restoration' (gap) theory of Genesis 1 and the proponents of a young earth, and this conflict runs like a refrain throughout the book.

The author leaves many matters unresolved. For example, if the early American creationists believed what they did through scientific ignorance (as he contends), how is it that many scientifically qualified creationists today accept the very same ideas? Indeed, how is it that non-creationist writers, such as Michael Denton, Phillip Johnson and even Karl Popper on the nature of true science, endorse views close to those expressed by these 'ignorant and unqualified' creationists?

A brief chapter on 'Evangelicals and Evolution in Great Britain' is again heavily biographical and dismissive. Of Douglas Dewar, co-founder of the Evolution Protest Movement (EPM), he writes, 'Dewar's book, printed at his own expense because no publisher would touch it, generated about as much public interest as the average Sunday sermon' (p.147). Similarly, of Lewis Merson Davies who had both PhD and DSc degrees in geology, he writes that he was 'better known for his work with the Boys' Brigade than for his stand against evolution'. Yet he has to admit that Davies' 'most widely read work, *The Bible and Modern Science* ... went through four book editions by 1953'. Perhaps Numbers has to be dismissive of Davies in order to maintain one of his major theses, namely that the creationists were unable to attract qualified geologists to their cause.

This chapter discusses both the Victoria Institute and the EPM, but we learn very little of the work or publications of these societies since, once again, Numbers is preoccupied with a handful of personalities involved in them. Predictably, these earn his praise only in so far as they (allegedly) distanced themselves from Biblical inerrancy, American creationism and flood geology. However, I question the truth of his claim that R. E. D. Clark 'stopped short of advocating the inerrancy of the Bible' (p.154).

Tracing the rise of societies in U.S.A., the author deals at great length with the American Scientific Affiliation (ASA), suggesting that its journey from creationism to theistic evolution and liberalism occurred because its members were too intelligent and well-qualified to accept an historical interpretation of Genesis 1. He does, however, point out the lack of honesty with which theistic evolutionists like Russell Mixer of Wheaton College concealed their true beliefs to avoid offending the Christian public.

When he turns to living creationists, the author is more circumspect than when he writes of earlier generations. The treatment of John Whitcomb and Henry Morris, and their definitive book *The Genesis Flood*, is factual and reasonably balanced. Though the author cannot resist some cheap jibes (such as the statement that 'at least one student' attended Morris' Bible class at Rice University to obtain better grades on surveying) he nevertheless gives an interesting account of

the way *The Genesis Flood* came to be written and how it was received by various constituencies. The same is true of the establishment of the Creation Research Society and the Institution for Creation Research. However, I found the account of the rise of 'scientific creationism', which distances itself from biblical revelation, less than satisfactory. This issue is at the heart of modern creationism, but is not accorded the critical analysis it deserves. Prejudice again prevails in a lengthy section entitled, somewhat pompously, 'Clifford L. Burdick and the integrity of creation research'. What at first sight promises to be an exposure of 'deception' in the conduct of research by creationists, turns out to be a rehearsal of the failings of a single elderly enthusiast.

The author is clearly not familiar with the science under debate in the evolution/creation controversy. Wisely, he steers clear of it in the main, but more than once confuses radiocarbon dating, with its strictly limited time-span, with the more general radiometric dating applicable to the rocks. More seriously, I found the book less than accurate in recounting several events of which I had direct personal knowledge.

Probably the major weakness of the book is that it sets out to establish a preconceived thesis, namely that creationism has been hijacked by flood geology, and that its revival in recent decades is the direct result of the publication of *The Genesis Flood*. There is no doubt that the book has had a profound impact on creationist thought, but to attribute everything to a single publication is, at best, an oversimplification, and at worst a misrepresentation of history. Closer attention to creationism outside of U.S.A. would, perhaps, have provided the author with a more balanced perspective.

Creation: The Bible & Science. John Barker. Gospel Standard Trust Publications, Harpenden, 1993. 59pp. No price given.

Evidence for Truth: Volume 1: Science. Dr. E. K. Victor Pearce. Evidence Programmes, Eastbourne, 1993. 319pp. £15 plus £1.50 p&p.

Reviewed by Mike G. Matthews

THESE two books start with the same basic premise, and have a similar overall aim: yet they contrive to be radically different in style and approach. They are aimed primarily at the Christian 'layman', with the intention of showing how the known facts of science are wholly compatible with the Word of God. In the opinion of this reviewer, one succeeds in brief compass with great clarity, whilst the other leaves the reader in greater confusion than when he started!

Creation: The Bible & Science.

This booklet starts with an Introduction which clearly identifies its purpose: 'to give an outline indicating firstly what the Bible teaches, secondly that this is fundamentally different from the theories generally taught in the world today, thirdly that there are serious objections to these theories and finally that true science and the Bible are not in conflict.' The author immediately goes on to say 'Without apology, the starting point is faith in the inspired, infallible Word of God', and he

then spells out the crucial issue very clearly 'Those who do not believe in these special acts of God can only propose an account based on the observed facts and the belief that everything has come about solely by the operation of the present laws of nature ... Thus everything is interpreted according to one belief or the other. Inevitably the two accounts are totally irreconcilable. Many have attempted to reconcile them, but underlying all such attempts there is ... (a) denial of some of the important truths and basic doctrines of the Bible.'

The book is then divided into chapters on What the Bible Teaches, Popular Theories of Origins, Objections to those theories, and Bible-based Scientific Theories. He also adds a chapter on The Future, which is an essential integral element for any study of this kind. There are Appendices on the Chemistry of Life, The Age of the Earth, and a Further Reading list (which includes *Origins*).

The Bible teaching covered includes the creation, the curse, the flood, and Babel, and this chapter sets out the ground—in a similar way to the Creation Manifesto (*Origins*, 1988, 2(5):6–10). The author also draws out a number of implications. He then makes the important point that popular accounts of origins have changed, and continue to change, unlike the unchanging Word of God: it is vital for Christians to realise that popular theories are 'moving targets'. The main features of today's most popular version of origins are then described: the Principle of Uniformity, the Big Bang, the Chance Origin of Life, the Theory of Evolution, the Formation of Rocks, and the Vast Age of the Universe. 'The Formation of the Rocks' is an unfortunate title for this section, as the author is actually describing the uniformitarian theory of rock formation and its dating by evolutionary 'index fossils'.

The chapter on 'Objections to the Popular Theories' outlines the case against them on 'general and scientific grounds', after simply stating that the overriding objection is that '(the theories) ignore, and are in many respects contrary to, the Word of God.' It would have been helpful if a general guide to the points of conflict with Scripture of each of the principles enumerated in the previous chapter had been included, in addition to the material in 'Bible-based Scientific Theories'. The objections include the fact that evolution is contrary to scientific laws, is not supported by the fossils, and has not been demonstrated. The author says, helpfully, that 'Natural selection, unlike evolution, can be observed. However it does not lead to evolution but rather to conservation; it enables organisms to adapt, within limits, to survive and it tends to eliminate mutations.' Without quoting huge numbers—which mean little to most people—the author illustrates the mathematical impossibility of evolution, and adds a section on what amounts to the argument from design. Recently your reviewer saw a TV programme where a young (evolutionary) scientist commented on a feature of slime moulds that seemed 'almost miraculous'. Blindness to the hand of the Creator is indeed wilful!

The strength of 'Bible-based Scientific Theories' is that it is not dogmatic about those theories, but demonstrates that there are scientifically valid theories consistent with Scripture. As the author says 'These theories are no more capable of scientific proof than the evolutionary theories'. Among those

mentioned are the pre-flood water vapour canopy and vast underground reservoirs, and a 'relatively young earth'. Whether it would be true to say that these are all features of the 'account most widely proposed by Bible believing scientists' is debatable, but this does not detract from the author's purpose.

It is a fact that what we believe about the past affects our view of the future, and this is clearly spelled out in the last chapter. The author emphasises that the question of origins is not academic, to be investigated by the curious, but concerns the heart of the gospel. 'The difference between the teaching of the Bible and the popular theories is of vital importance to every member of the human race because "we must all appear before the judgement seat of Christ".'

Altogether an excellent 'layman's introduction' to the subject, and an ideal companion to the 'Creation Manifesto'.

Evidence for Truth: Volume 1: Science

Although this book is a substantial work, with much material that is of interest, it conveys a certain feeling which your reviewer can best describe as 'amateur', which will immediately deter a number of serious readers. This is all the more surprising given the academic credentials of the author (eminent scientist, archaeologist and theologian according to the blurb) and the commendations from various distinguished scholars: but even here, in the Forewords (*sic*), this strange style is evident in the way the material is presented. The very first section is the Preface, which is subtitled 'What this could do for you': it ends with the assurance that 'the facts which will be brought before you can give you a firm, practical faith to face life and to convince friends'. This is followed by a section containing the statement that 'those who have attended the author's lectures have included atheists and agnostics who thought that they have explained everything without God, but as the result of his teaching, have become convinced and converted and blessed.' No doubt this is written by a third party, but the format makes it appear that it is from the author's own hand!

After several extracts from letters testifying to the author's helpfulness, 8 pages of contents, 'About the Author', and the Forewords, one reaches the Introduction on p.21, which starts with more extracts from letters, some repeated! At last we reach sections describing the 'Concept of the Series' and 'Objectives of this Book'—but whilst the contents are summarised, the objectives are difficult to identify.

Other highly disconcerting problems are the large number of factual mistakes and typographical errors. For instance, 'Archdeacon Ussher' is referred to, which should read 'Archbishop Ussher'. Even more alarming is the reference to Stephen Hawking as the author of 'The Selfish Gene'—it is of course Richard Dawkins. On page 91 we read 'cultive' which should be 'cultivate': and there are many more. There are no references, so it is impossible to verify the author's quotations by scientific authorities, and it is often not made clear which statements are quotations. In addition there are several anachronisms, such as the reference to *Archaeopteryx* as a fraud.

Having said all that, it must be stated that one of the 'Principles behind the Series' is to reveal 'that the message of

the Bible concerning spiritual truth is true, as is also its history, prophecy and science. All are completely true, reliable and factual. This has been confirmed by research.' Every so often there are little gems, such as 'The Creator is seen in his works and has spoken in his Word', and 'I find there is no contradiction between true science and the Bible because the author is the same...'. So the author is clearly committed to that same high view of Scripture as the author of the other work reviewed here, and that of your reviewer: it is therefore all the more disappointing that I cannot wholly recommend the book.

The main substance of the book is an examination of various scientific disciplines in the light of Scripture, including DNA and the Genetic Code, the Big Bang, the 'Missing Link', the Age of the Rocks, and the Origin of Farming; there are also major sections on evidences for the Fall, the Flood, the Tower of Babel, and many more. Interspersed are chapters on 'the Great TV Cover-up', 'The Conversion of Charles Darwin', and 'Moses in the Time Machine' (Where the author merely uses this as a literary device, even though it is a strange way to put a point across). The book concludes with two chapters on archaeological and other evidences for the truth of Scripture.

There is much fascinating material here, and some of great value. There is an interesting discussion of the age of the earth and the various views which Christians have taken which is worth reading even if one does not agree with the author's conclusions. He makes a valuable comment on this issue: 'the mark of a true Biblical scientist is not whether he believes the particular view you subscribe to, but whether he believes the Bible to be the unerring Word of God.' On the issue of evolution itself, he is adamant that the evidence is all against it and in favour of God's creation of creatures at once perfectly suited to their environment and lifestyle.

On the other hand, there is a clear attempt to find a 'fit' between much of modern science and archaeology with their underlying assumptions, which in some cases necessitates an exegesis which this reviewer finds very strained. The 'big bang', for instance, is found to be consistent with the biblical account. Adam is considered to be a neolithic farmer, appearing in the Ararat region (the author's supposed location of the Garden of Eden) after the ice age—which must therefore still come into the category of 'very good'. The author claims that the Neolithic town of Catal Huyuk in Eastern Turkey is a pre-flood settlement: which is difficult to reconcile with the statements elsewhere that the flood was indeed universal, leaving sediments even on the high mountains!

The basic stated principles upon which the book is based are admirable. Unfortunately, they are not rigorously followed through. The biblical exegesis is often strained in order to 'fit in' with the latest scientific theories, and there are clear discrepancies between some of the theories advocated and the Scriptures. The format and method of organisation is muddled, and the style a strange mixture of the technical and the avuncular.

This is an interesting collection of some current theories on a number of topics from an old-earth perspective, but would certainly confuse the reader to whom it appears to be aimed.

Cumulative Index to *Origins*, Journal of the *Biblical Creation Society*

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